MASSACHUSETTS

10003

AGRICULTURAL JOURNAL.

Vol. VII.] JUNE, 1822. [No. II.

REMARKS ON THE MANNER, IN WHICH THIS JOURNAL IS CONDUCTED, AND THE RULES BY WHICH THE COMMITTEE, ENTRUSTED WITH THE PUBLICATION, ARE GOVERNED. By J. L. *one of that Committee.*

THE principal object of these remarks, is, to discharge the Trustees, as a body, from all responsibility for the faults, or for the errors or mistakes of the essays published under their sanction. For the last ten years, the Trustees have annually appointed a committee for the publication of the Journal, to whom are regularly referred all articles addressed to the Society; and that committee are alone responsible for any injudicious selections.

The Committee thus appointed do not consider themselves as in any degree responsible for the correctness of the statements, or the soundness of the theories of the various writers, whose essays they publish. Their rule is to admit every essay, which appears to contain any new hint in relation either to Agriculture or horticulture. It is manifestly impossible for them to judge of the correctness in point *of fact*, of any statement, made by a correspondent, and they have believed, that a more free and unreserved communication of all Agricultural experiments, whether the conclusions drawn from them are erroneous, or are not, is of great use. The cautious farmer, if he is struck with their novelty, may try them for himself. If they are found to fail, he will not repeat

the experiment, but he will be very careful to inquire, whether he has faithfully followed the instructions of the first essayist. Whether his soil was the same as that in which the first experiment was made, and whether he has taken the same pains to produce the proposed result. If he is satisfied that he has so done, and that the novelty recommended is not entitled to his confidence, he will abandon it.

It is true, that with respect to many subjects intimately connected with the prosperity of our agriculture, our Journal during the last thirty years has contained a great number of opposite, and irreconcileable opinions. But this ought not to diminish the public confidence, since it is avowed to be conducted on the principles of free inquiry, and since it is not more liable to this objection than all similar works published in this, or in the European world. Men of science are found to differ on most essential points. How many theories have been published, have prevailed for a time, and have gone into oblivion, in the important science of medicine! How materially has chemical science changed, not only since the time of Priestley and Black, but since it was supposed to be irrevocably and permanently fixed by Lavoisier and the French chemists of his school! How great are the divisions of theoretical opinion among the Geologists, the Wernerians and Huttonians!

It is not therefore surprizing, that, such an art as agriculture, though the oldest, yet we may say without a paradox, still in its infancy, so much abandoned to men without science, so vast in its extent, so diversified in its relation to soils and climates, should have its conflicting and often opposite doctrines, and, should be constantly changing, but as we hope to shew, constantly improving. It is not very easy to see how such an *art*, and as we think, as it is now conducted in Europe, a science, as Agriculture, including Horticulture, could be improved, except by the free and unlimited communication to the public through the press, of all well conducted experiments. When the suggestion was first

made that steam would be extensively employed as a means of propelling vessels through the water, without the aid, and even against the force of winds and currents, it was thought an idle speculation, but we have lived to see it realized.

We undertake to say, that thirty years since it would have been believed impossible to raise, as Mr. Hunnewell of Newton did, 112 bushels of Indian Corn to an acre—and I distinctly recollect that when the first accounts in the Bath agricultural papers reached us that they had raised 500 and even 900 bushels of potatoes per acre, it was deemed, if not a fable, yet an experiment peculiar to Great Britain and its soil and climate, and not to be looked for among us.

Still, we have seen that in all parts of our country individuals have succeeded in raising from 450 to 500 bushels per acre of this invaluable root. We have seen that the cultivation of other roots to aid the support of cattle during the winter has advanced much faster with us, considering the late period in which we undertook it than in any part of Europe. We hear, not occasionally but constantly, every year, of 600 or 700 bushels of Mangel Wurtzel, or the white beet—of 500 bushels of the Ruta baga or Swedish turnip per acre, and our cattle are, and must be of course better fed, and eventually highly improved.

But enough has been said on this topic, in favour of our efforts and of the advantages of circulating these accounts of individual success.

It is now proper to recur to our main object, which is to shew, that contradictions will creep into our Journal, and the business of the attentive farmer is to sift the wheat from the chaff.

There is one topic of great moment, which is not even to this day settled in Great Britain, and which has been the subject of various opposite and contradictory statements and experiments in our Journal, during the last thirty years, and that is, whether any considerable saving can be made in the

seed for planting of potatoes. The most careful and penurious culture, if whole potatoes are used, will require thirteen bushels to the acre. In England sometimes thirty bushels are used. This is a great and serious loss and various experiments have been made from time to time with a view to diminish it.

The several projects are,

1st. To use only small potatoes, a bushel of which will plant as much as two bushels of large ones. This is the Irish mode, but it should be recollected, that Ireland is of all countries in Europe the best adapted to this root. Its incessant rains—its cloudy sky—its moist soil, are favourable to the potatoe, which though a native of a southern and perhaps a tropical region, is found only on mountains, where the climate is temperate and the soil moist.

Such I believe to be the fact from the best examination I have been able to make.

2dly. To cut the large potatoes into small parts.

3dly. To scoop out the eyes.

4thly. To take only the sprouts.

All these modes have had their advocates, and experiments (on however in all cases, a small scale,) have gone the length of proving satisfactorily, that each of these modes *will answer*, and will produce a good crop.

If this were true in general culture, there can be no doubt that the whole farming interest would prefer sprouts, because the potatoes saved on an acre of ground would nearly pay for the labour of the first planting of the crop. But having had constant access to the best European authorities, and being intimate with some of the best cultivators in our country, I have no hesitation to say, that on an extensive scale, it is better economy to plant at least middle sized potatoes, or cut potatoes, equal in size to those, in preference to any other.

I came to this opinion in the same manner in which we arrive at all other sound opinions.

First, from repeated and extensive experiments of my own.

Secondly, from the fact, that though this system of economy in seed is at least of forty years duration, it has not been adopted generally in the countries most interested, and most distinguished in agriculture, nor do I believe, that one of the advocates for this economy of seed has ever practised it on an extensive scale for any great number of years. In short, I doubt whether it is the usual and ordinary mode of culture of any great farmer on earth. This if it be true, ought to settle the question.

Thirdly. I might add, that the potatoe is by nature formed to furnish from its fleshy, and watery root, the food of the young shoots. It sends out its growing shoots long before it sends forth a sufficient quantity of roots to sustain them. Its natural dependence is on the planted tuber itself for the first four weeks of its growth. It is a violence to the nature, then, of the plant, to deprive it of its maternal support, and though it may survive the shock in some favourable instances, yet on a great scale it will fail.

If therefore in England with its watery sky, and its clouded atmosphere, this plan has never gone into operation, (Dr. Anderson's weight notwithstanding,) it seems to me to be useless to attempt it here, in our climate, always inclined to more drought, than moisture.

The foregoing remarks have no reference to the ingenious experiments of Mr. Derby of Salem, one of our Trustees, by which he has been enabled to raise four successive crops of potatoes from one set of roots by taking off the shoots from time to time as they were raised in a hotbed frame. This is an interesting horticultural experiment, but I presume he would not recommend it to farmers on a great scale.

It ought also to be understood, that even articles written avowedly *by one of the Trustees*, do not necessarily express the opinion of that body. Perhaps in some cases, not a member of the board may agree with the writer. Every member has his own theories adapted to his own soil, situation and interest.

He makes an experiment and is pleased with it. He communicates it to the board—they recommend its publication. They hope it may be useful—that it may suit some portion of the farmers, who are similarly situated; but they by no means intend to recommend it for general adoption. It is enough for their purpose, that experiments, the only sure ground of philosophical improvement, have been made. Thus, for example, when the Hon. Mr. Quincy published his experiments on Hedge planting for fences, they were aware, that it would not be of much value except on farms destitute, like his, of natural materials for stone walls. In the sandy territory of the old Colony it may be of extensive use, but on farms, such as I know, where the rocks must be got out before the plough can move; where they must be carted to a great distance if not used for walls, where, in short, walls are the cheapest mode of *disposing* of the stones, it is excellent husbandry so to apply them. In a farm of a friend of mine in Milton, if they had not been employed in building walls, they would have cost more for their removal than the land would have been worth.

On the College farm at Waltham, a lot of excellent land, consisting of 13 acres, is furnished a double wall of four feet in thickness round the whole. This will last for a century at least, and by its mode of erection, it did not cost more than it would have done to pile the stones up in vast heaps, covering a great quantity of valuable land.

To recommend hedges in such a situation was never our design, nor, we presume, did it ever enter into the thought of the intelligent writer of that article.

In relation to the *species* of thorn recommended by Mr. Quincy, truth, and long experiment enables, and requires me to say, that the Virginia thorn so much recommended by Mr. Maine, from whose account Mr. Quincy very properly introduced and recommended it, is not by any means the best adapted for general use for quick or live hedges. It is too

apt to run up, and not sufficiently prone to throw out strong lateral shoots, and it is believed, that either the common White Hawthorn of England or even our own New England Cockspur thorn is better adapted for this purpose. We make these remarks not with the view of diminishing the merit of Mr. Quincy in making these experiments and communicating them, but simply to make it known, that what we publish is intended merely as hints which others may follow or pursue, and we feel bound to state from time to time any doubts which may occur to us on the subject, or any opposite experience.

We have been more free in speaking of the limited extent to which thorn hedges can be carried in the stony and rocky country of New England, and the defects of the variety of thorn first introduced, because we are ready to say, and say it cordially, that we think all that portion of our country which resembles the estate of Mr. Quincy, such as a part of Essex, Middlesex, Plymouth, Bristol, and some of the lands on Connecticut river, will finally derive great benefit from the introduction of live fences. They are yet in their infancy, and to Mr. Quincy we owe their introduction. It will be many years before they will be extensively used, but they will we presume eventually be introduced in all countries where stones cannot be found, and he will I trust have the credit of introducing them, a credit, which will increase as they shall be extended. They are very beautiful. They give an air of cultivation to the landscape—they shelter the crops, and produce a general effect of which no man who has not seen the difference between French and English scenery can have any adequate conception.

Some persons have doubted the applicability of the system of soiling to our country. By soiling, we mean, (as some of our readers may not be acquainted with the term, which we must confess is a barbarous one, having no sort of connexion with its real meaning) the feeding cattle either in the barn or barn yard through the summer

months with fresh cut green food. Mr. Quincy has very fully and very satisfactorily proved, that it can be profitably done in our country—that its cost, compared to its usefulness, is very small.

We agree however with many farmers, that it is not *generally* applicable to our present state of agriculture. It is of great use where fencing stuff is dear—where grass is of great value—where cultivation is carried to great perfection—where population treads very close on the heels of production. But in our country, even in the populous parts of New England, (we say it with great respect for the gentleman who has called our attention to it,) we doubt whether it can be adopted with great advantage, except on lands in the vicinity of great cities, or on farms reduced to a state of great improvement and high cultivation, or on very small farms, where it is invaluable. For example, to myself its value is beyond calculation. But my next neighbour has a rocky pasture, to subdue which, to any tolerable state, for any sort of cultivation, would cost the whole value of his farm—but it makes excellent pasture land. The cattle thrive admirably among the rocks and shrubs of this stubborn pasture, which will never be cultivated, till our country shall count as China does, its 270 millions of souls.

Immense woods and pasture grounds exist within 50 miles of Boston which can be used in no way so profitably as they are now used, for pasture. Till *they* are taken up and cultivated, soiling will be limited, *must* be limited only to small cultivators, or great experimental farmers. If it be asked why *are not* these waste pasture lands taken up for cultivation? my answer is, they are not wanted—they will not pay the price of reducing them to cultivation. They will remain as they are, till New-England shall have its half a dozen Manchesters and Birminghams, and then soiling will become, and never till then, extensively in use.

I suggest these opinions as from myself alone, lest other members of the board of agriculture should be implicated.

No man ought to be ashamed of avowing his opinions, and we should make but small progress, in any art, if we feared to express our sentiments, because different ones had been announced by respectable men.

My own ideas as to the most practicable improvements in the agriculture of this part of our country, are principally confined to the following particulars.

First. The improvement of the character and qualities of all our domestic animals. It would not be extravagant to say that the expense and profits of raising stock would be beneficially affected by having the best races of every sort, that are now known in Europe. New England will never be a grain country, any more than she will become the raiser of tobacco or cotton. But she *can* probably supply two millions of people with beef, pork, and wool.

Secondly. To do this, she may and must use for half a century her natural pastures, because she cannot afford, at present prices, to break up her uncultivated lands, but she *can* raise, and raise to advantage, by a succession of crops, a sufficient supply of succulent roots, such as, the Swedish turnip—the Mangel Wurtzel or white beet, carrots and potatoes, to come in aid of her cultivated and natural grass lands, to support, and improve the condition of her stock of animals, to the extent of double, nay I believe, treble their present numbers.

They will not, they *cannot* exceed the *demand*, that must regulate the supply, after all we can say or write, but much may be done to enable us to raise cheaper and better animals. If cheaper, the *demand* will be greater.

We have done much in this way, but much remains to do.

Thirdly. We are very deficient in Horticulture. To be sure there is no great profit in cash arising to the farmer from gardening beyond the limits of twenty miles from a great town—but when men have arrived to the degree of comfort which our farmers generally enjoy, they ought to seek innocent luxuries. We cannot hope or expect to see their front

yards ornamented, like those of the Dutch and English cottagers, who are not worth a twentieth part as much as they are, with flowering shrubs and plants, so neat and so beautiful as to realize the description of the poets, who have descanted on pastoral life. This depends in those countries on fashion, and as the more opulent indulge in those luxuries, the others follow as imitators; but a delightful pear—an excellent plum or peach, or an admirable winter apple, fresh in April, would be as sweet to the palate of a farmer as to that of a luxurious and opulent merchant, and why these are neglected, I never could comprehend, as the labour amounts to a trifle in procuring and in preserving them.

Perhaps New England owes its inferiority in these particulars more to the want of good nurseries, than to any other cause. No farmer ought to be without his asparagus bed, which, once laid down, will last without his labour for forty years—no one ought to be without his patch of green peas—lettuce—early and late beans. If more attention were paid to these comforts, we should hear less of spotted and typhus fevers in our otherwise healthy villages, and our females in the country would be more proud of the grounds about their houses, and take more interest in their neatness and comfort than some, perhaps too many of them now do. We do not mean to say, there are not a great many farmers who pay some attention to these things, but the deficiency is deplorable.

[The following article on the raising of Peas in field culture by the Hon. Mr. Pickering, President of the Agricultural Society for the County of Essex, was sent for our number which issued in June last, but was by accident mislaid. A notice was taken of it in that number, but it was not recovered from its concealment till this moment. We are always happy in publishing the remarks of a gentleman so well experienced in agriculture, and it does not derive less interest from the deserved respect and confidence which the writer has always enjoyed. The occasion leads us to remark, that as there is but one publication in the state on the subject of agriculture exclusively devoted to that object, it would be desirable that all communications to the local boards, which they should deem worthy of publication should be for-

warded to us for publication, and they will be cheerfully received and duly noticed.---Such we had hoped would be the effect of the creation of societies in the several counties.]

To JOHN LOWELL, Esq. Corresponding Secretary of the Massachusetts Agricultural Society.

Salem, Feb'y. 21, 1821.

DEAR SIR,

BY the last number of your Agricultural Repository and Journal, which I have recently received, I observe that the Trustees offer a premium for the greatest quantity of dry pease that shall be raised on an acre, not less than thirty bushels. The soil must be fertile to yield such a crop, and so clean that the pease shall not be infested with a growth of weeds. But the greatest difficulty to be encountered will be, to produce peas that shall be free from bugs; for I presume it is such a crop alone that will entitle a claimant to the premium. An effectual remedy to this evil is *late sowing;* but the hot sun of June will so pinch the vines of late sown pease, that the crop will be small; unless the land be *moist* as well as *rich.* To exemplify this remark, as well as to communicate some information concerning the pease bug, I present to you the following statement of facts and observations.

In the year 1787, at Wyoming in Pennsylvania, I sowed in my garden, some beds with the early Charlton pease, and some with the green marrowfat: it was the first week in May. In July following, the pods of the first were abundant, yielding very fine green pease. A part remaining ungathered, ripened, and were saved for seed for the next year. The green marrowfats succeeded, were also abundant, and the most rich and delicate I had ever tasted.—The ground had been lying in grass nine or ten years, and no *manure* was applied. A part of the marrowfats ripened, and were also saved for seed.

In the spring of 1788, I took both of these parcels of seed to sow. On opening the small bag of the early Charlton, I found (as I had expected) the pease swarming with

bugs. When I had sown them, I opened the bag of marrowfats; but to my surprize, not a single bug was to be seen —the pease were all sound. The obvious inference was, that this mischievous insect is limited to a certain period for depositing its eggs; and that if the tender pods are not found till that period is passed, the pease will be free from bugs. And intending to raise some field pease that year, this was decisive as to the time of sowing. Nevertheless, I had the curiosity to inquire of an old farmer, my neighbour, at what time I must sow the common field pease to escape the bug? "In the old of the moon in May" was his answer. "But there are two old moons in the present May" I replied. He was of course confounded.

I delayed sowing my field pease till about the 20th of May. The produce was small; for the ground was not only *dry*, but *poor;* the crop however sufficed for my family, and was entirely free from bugs.—The next year I repeated the same experiment; and with the same success; obtaining a perfectly clean but a small crop; for I had heedlessly again sown the seed on a poor and dry soil. The third year I attempted a better practice; selecting a piece of rich land, lying low, and sufficiently moist to counteract the effect of such late sowing: and the result equalled my expectation. I harvested ten bushels of fine pease, and one bushel of an inferior quality, from half an acre of ground. It was too thinly seeded; one bushel only having been sown (broadcast) when 1½ bushel would have been better; for the vines should grow close enough to give mutual support, and to smother the weeds. It is difficult to cover pease with the harrow; they ought to be ploughed in. Lord Kames says that "pease laid a foot below the surface will vegetate: but that the most approved depth is six inches in light soil, and four inches in clay soil."

I had conjectured, that in the season for depositing the eggs in the tender pods, the bugs opened a passage through them, and into the newly formed pea, and so deposited their

eggs: just as I had seen the locust, with its borer, pierce the young shoots of trees, and thrust in its eggs. But twenty years afterwards, I found in the first volume of the Memoirs of the Philadelphia Society for promoting Agriculture, a paper on the pea bug, by a distinguished Naturalist, the late William Bartram of Pennsylvania, of which I subjoin an extract. My conjecture you will place to the score of my ignorance in the science of insects. Of these pea bugs, Mr. Bartram says: "They feed, when in the caterpillar or grub state, on the green garden or field pea, as soon as the pods have arrived to a state of maturity sufficient to show the pease which are within them. In the evening, or on a cloudy day, the female deposits her eggs on the outside of the pods; these eggs or nits soon hatch, and the young larva or worm eats directly through, and enters the tender young pea, where it lodges, and remains feeding on its contents, until it changes to a chrysalis, and thence to a fly or beetle, before the succeeding spring; but do not eat their way out until the colds and frosts are past, which is about the beginning of April, when we generally begin to plant pease."—"After they have disseminated their eggs, they perish."—"But that which is surprizing and difficult to be accounted for, is, that the worm leaves the *rostellum* or sprout untouched, or at least uninjured; for almost every pea vegetates and thrives vigorously, notwithstanding the *corculum* (the rudiment of the young plant) and plumula seem to be consumed."

Wyoming (now Wilkesbarré) is in latitude 41°. 13′. The active flight of the pea bug will doubtless be earlier there than in our own region. One or two years observations, in different climates, may be requisite to ascertain the time when their flight is over and they perish. As pease of the various sorts blossom and form their pods at very different times, some that come late may perhaps admit of such early sowing as to secure a vigorous and ample growth of the vines

before the intense heat of summer arrives: in which case a satisfactory crop may more surely be expected.

Having noticed the folly of regarding the Moon in relation to the time of sowing pease, I add, that the idea of its influence in any other operations in husbandry, ought to be alike discarded. It is a mischievous supposition kept alive by tradition, and countenanced and supported by the idle remarks and representations in almanacks. The figure of a man marked with the *signs*, and the prognostications of the weather, ought to be expunged; and every well disposed almanack-maker would banish them if he knew the injuries they occasion, by misleading the farmer in any branch of rural economy.—I once heard some farmers—speaking of spreading manure on grass-land in the spring—say very gravely, *that it should not be done when the horns of the moon were turned upwards, for then the manure, instead of sinking into the ground, would rise with the grass, and do no good.* On the contrary, they mentioned one farmer who *would not set up his worm fence when the horns of the moon pointed downwards*—for then the stones placed under the angles of the fence would sink, and the lower rails touch the ground and rot. And an industrious farmer in another state told me that he had slaughtered a fine heifer calf which he wished to have raised, *because it was dropped in the dark of the moon.* If I had not witnessed these facts, I should have hardly thought it possible that such ridiculous notions could have been entertained by any persons who claimed a share of common sense. Even the changes of the weather so generally supposed to be influenced by the phases of the moon, have been found, by long course of observations, to happen at all periods of the moon's appearance indiscriminately. This fact which your father mentioned to me twenty years ago, was this day repeated to me by the gentleman who had noted those observations. Were it otherwise, he remarked, —did the moon's influence determine the weather—then

should not this be fair or foul, at the same times, in all countries on the globe ?

With great respect and esteem,
I am, dear sir,
Your obed't. serv't.
TIMOTHY PICKERING.

COMPARISON OF THE PRESENT WITH SOME PAST SEASONS.

We have for several years published such a comparison, and farmers and general readers having expressed a certain degree of pleasure from the statement, we continue it. It certainly may be made of some use, if cultivators, instead of consulting the almanack, will attend to the indications of nature. Certain plants will not flower till the earth has arrived at a given degree of temperature.

They vary from five to twenty days in the time of flowering in different seasons. If, therefore, as to the tenderer plants, the Indian corn, squash, pumpkin and melon, we should resolve to plant them, not at a determinate period of the year, but when we should find by the flowering of certain plants, that the soil is so warm as to endanger their rotting in the earth, we think some good would be attained.

We shall take a few plants as a specimen, and compare the present season with some of the earliest during the last nine years.

The *Cherry* opened its blossoms in 1813, May 10th—1815, May 10th—1816, May 6th—1818, May 17th—1820, May 2d —1822, May 1st.

Asparagus was fit for the table for the first time in 1813, May 14th—1815, May 6th—1816, May 5th—1818, May 15th—1820, May 1st—1822, May 1st. It should be remarked that the Asparagus was cut from the *same* bed in each year—a bed was planted 33 years since, and never

changed, and one which has been constantly growing better—an important fact in horticulture.

Plums were first in flower in the year 1815, May 14th—1817, May 7th—1819, May 13th—1821, May 11th—1822, May 4th.

Pears began to blow for the first time in 1813, May 20th—1815, May 12th—1817, May 7th—1819, May 17th—1820, May 9th—1922, May 5th.

Apples first showed their open flowers, in 1813, May 23d—1816, May 18th—1817, May 12th—1819, May 19th—1820, May 11th—1822, May 9th.

It will be seen by this table, that the present season is the earliest on the whole which we have had for nine years.

There is, however, a manifest difference between the relative times of flowering of the *different* plants in the several years; and this is readily accounted for by the circumstance, that a single turn of cold weather will check the progress of all plants, and the season which may have produced the earliest flowers on the Apricot, the earliest of our fruits, may not be earlier than usual in producing flowers on the Apple.

To give one practical rule, which we believe may be of some use, we should say, that when the Apple tree flowers, we may safely (be it sooner or later) venture to put our corn, squashes and melons into the earth.

This season was the earliest as to the opening of the ground known on my place for 16 years. I planted potatoes and peas on the 7th of March, fifteen days earlier than I was ever able to do it before—but as I have often before remarked, all these differences disappear as the season advances, and on the whole I doubt whether the present season is in advance more than four or five days of that of common years. It however has been a great relief to the labour of the farmer—His season of labour has been extended this year at least three weeks in this vicinity, and this is of great value to him. The show of blossoms in all kinds of fruit is very good, nearly double to that of the last year. The present

cool weather is highly beneficial to the fruit. We had a pretty severe frost on the 6th inst. which in low grounds injured early potatoes, but the damage on the whole was not great. If we can escape another for one week more, we may presume on a fruitful year. The prospect of grass is at this moment above that of ordinary years.

A ROXBURY FARMER.

To JOHN LOWELL, Esq. Secretary to the Massachusetts Agricultural Society.

SIR,

I HAVE observed for several years past at this season of the year a communication in the public prints, signed "A Roxbury Farmer," giving a statement of the flowering of certain plants on certain days, which, when compared with preceding years, are said to be indications of the forwardness or tardiness of the season.

In the Daily Advertiser of the 11th inst. I observed with much pleasure a communication from the same quarter, making a comparison of the present with past seasons, going back as far as 1813, and taking as the ground of the comparison the cutting of asparagus, and the flowering of certain apple, pear, cherry, and plum trees, standing in the open ground. In this piece there is a suggestion which I think highly important, and which, if properly improved by the farmers and gardeners in the neighbourhood of this town, would soon supply our market from the open ground with early vegetables much sooner than usual. The suggestion alluded to is, that the planting of tender seeds like Indian Corn, beans, &c. and those which produce tender plants like melons, squashes, &c. should be regulated by certain indications of nature, and not by the almanac.

It may be objected to by some persons as being too uncertain in our climate where we are subject to cold east

erly rains for several days together during the month of May; and to severe frosts even as late as the month of June; but a little consideration will, I think, show that these objections are not well founded.

If each farmer or gardener will make his own observations within his own grounds, and always upon the *same* plants, while in health, and under the same degree of cultivation; and make his notes with care when the state of the blossom is at the same stage of forwardness, there can be no doubt of its correctness. Let him take his own asparagus bed as an index of the warmth of the ground in the early part of May, and he can judge with great correctness, provided the asparagus bed be always forked and dressed on the same day, or nearly, in the month of April, and with the same quantity and quality of manure: for on this plant the warmth of the soil acts immediately on the *root* alone, and therefore there can be no better guide for ascertaining the temperature of the ground at that season. If we can plant corn and squash seed the middle of May when the asparagus is in a state to be cut the 7th of that month, why not plant those seeds the 7th when the asparagus is fit to cut the first of May? A peach tree, cherry tree, or a plum tree in good health, is also a fair indication of the temperature of the earth, as is the apple and pear tree, if always kept in a good state, or in a cultivated or ploughed piece of ground; but in the orchard, where the grass is allowed to choak the circulation, three years out of five, trees are not so correct an index as the asparagus bed, or as they themselves are when growing in a garden or ploughed field where the ground is always open, so that the rays of the sun and the warmth of the atmosphere enter with less obstruction.

I have said that the *same* plant should always be taken as the standing index, because peaches, for instance, of different sorts or varieties, and cherries of different sorts, as well as

pears and other fruits, open their buds and blossoms sooner or later according to the respective habits of each individual or variety; so that a person who should take one year an early peach, and the next the late heath as his index, might find himself very far from correct.

With respect to the rains which prevail in the month of May, by which seeds are rotted in the ground, I apprehend that if the ground be warm enough to excite the germ of the seed *early* in May, it will as soon be out of danger from rot, as if it be planted the *middle* of May; for the rains prevail as much towards the last as the first of the month. And as respects the late frosts which are dreaded so much by many people when the spring is early open, I confess, that so far as my own observation goes, I should fear it less when the spring is forward than when it is tardy. I don't mean to say that premature heat, which we sometimes have, is not like to be followed by frosts in May; but when the spring continues to put forth new evidence daily of its settled state in a regular and natural manner, so as to bring forward vegetation *early*, and with unusual vigour in May, I think there is much less danger of late frosts than when the cold blasts from the Canada borders are constantly interrupting its progress—because in one instance the earth is gradually warmed, and creates within its influence a warm atmosphere that prevents frost from taking place; whereas in the other case the earth continues cold, and the temperature of the atmosphere near its surface is less capable of resisting the night chilling dews which fall upon the young plants that are putting forth. I believe that if recourse be had to the state of the weather for any ten years together from the 25th March to the 5th May, it will be found that late in the season frosts have occurred much more frequently when the average temperature of the spring months has been *below* rather than when it has been *above* any given point.

If there be any thing worth your notice in these observa-

tions, you are at liberty to make such use of them as you may judge proper; if there is not, they will serve as an expression of my thanks to the author of the communication signed "*the Roxbury Farmer*" for the suggestions he has made; and I hope that every one who meets with that article may receive the same impressions that I have from it.

Yours respectfully,

INDICATOR.

May 13, 1822.

ON THE CULTURE OF SEA KALE (CRAMBE MARITIMA,) AND OF THE SALSAFY, OR OYSTER PLANT, (TRAGGOPOON,) FOR THE MARKET, AND FOR PRIVATE USE. By J. LOWELL.

We have introduced these plants some years since to the notice of our cultivators, but there has been but small progress yet made in their use, and of course in their cultivation. This cannot have arisen from any dislike to them, because when introduced to the table, they are universally approved, and used. They are both favourites at European tables, and are accounted luxuries. The first is an earlier product than asparagus, and much preferred by those who relish the Cauliflower, which it resembles in its flavour. They have been sent to our market, but do not meet a ready sale, and of course, those who supply the market are not encouraged to raise them. It cannot be supposed that the taste of the people in this country is essentially different from that of the inhabitants of Europe. The truth is, that we are contented with a much narrower list of articles of luxury than the taste of Europeans demand. *They* are not contented with potatoes only in the species, a new plant, even with them, unknown before the reign of Elizabeth. *They* require a new vegetable every month, and we are fast advancing to a state of luxury, which will require and demand variety. Even in England, two hundred years since, they could furnish no salad, but

water cresses, and in our own country, thirty years ago, we were strangers to the Rhubarb, (Rheum Rhaponticum) which has now become an article of extensive culture, far preferable in many respects to the unripe gooseberry, for tarts, puddings and preserves. It comes into use some weeks earlier—is raised with unfailing certainty and with trifling care—is perennial and abundant—is supposed to be more wholesome than the gooseberry. It is now in general use, and constantly at market. We are indebted for its introduc- to an amateur in Horticulture in the state of Maine. This example shows, that we may introduce something new, and that our horticulture was not at its highest point before.

The Sea Kale is a plant of recent introduction in Europe. Perhaps its culture cannot be traced back beyond forty years. It is a native of the sea coast of the southern parts of England, where it is found growing in sea sand.

It is very hardy—grows in any tolerable soil—is perennial, and costs not half the labour bestowed on asparagus. It may be raised from the seed or from the root, and fifty plants, occupying a very small space, will supply a single family. In its taste it resembles the Cauliflower. The only labour it requires is to cover it with sand, or earth, or with pots, or boxes in March, so as to exclude the light and to blanch it, or make it white. If not blanched it is neither so beautiful to the eye, or so tender, or so delicate to the taste as if blanched. It should be thoroughly boiled and is better if boiled in milk and water. It should be served up like Cauliflowers, with melted butter. It comes in at a season in which our vegetables in this country are very deficient.

If in England and France where it has to compare at the same table with green pease, and spinach, it is admired as a luxury, can it be possible that it will not eventually succeed with us? We shall be happy to furnish seeds of it to any persons who may be disposed to introduce it. I am not discouraged by the tardiness of its progress in coming into use; I have seen such changes in our horticulture, that I feel con-

vinced, that we shall eventually have a vegetable market nearly equal to that of Covent Garden, though at present we are to be sure at a mortifying distance from it. One remark must impress itself, I am sure, deeply, on every man who is interested in such subjects, small to be sure in some views, but important in others—and that is, that if in older countries with milder and shorter winters, in which they give you green vegetables nine months in the year, they value such a plant as the Sea Kale, it must be of greater value to us, whose soil is bound in frost from the 10th of November to the first of April, and sterile till the first of May.

There is another reflection of some moment. Every new plant introduced for the table increases the comforts and diminishes the expences of the middling classes of citizens. A vegetable market fully supplied, extends very materially the means of subsistence. Competition will produce abundance, and of course cheapness. The Sea Kale is easily raised, and endures forever. It requires no manure as the Asparagus does. It is indeed injured by it, and if our farmers in the interior had a patch of it in their gardens, they would have an earlier succulent vegetable to eat with their salted provisions, than any other they could raise.

The Salsafy, or Oyster plant, is another vegetable of easy production, and universally eaten, when introduced to the table. I know no one vegetable which is more esteemed.

Yet though it has been in our gardens for ten years, it has never been extensively cultivated for the market, and I think it is owing to its not being generally known. It resembles a small parsnip in its appearance. It is raised annually from seeds, and as easily, requiring no more care than the carrot. It bears a tolerable crop. In Europe it is eaten both boiled and fried. In this country it is parboiled, and then fried either in batter, or without. It forms an admirable garnish for boiled fowls or turkies. In its taste, it so strongly resembles the oyster, than when sliced, and fried in batter,

it can scarcely be distinguished from it. If our gardeners would introduce it into the market, and our citizens once try it, there would be no danger of its ever failing hereafter to be raised. It is in eating from November to May, precisely the period in which our vegetable market is most deficient in variety.

It is not possible for any one to believe without experience, how much we are below every part of Europe in vegetables. The great difficulty in introducing a new plant for the table, is, the want of attention on the part of the consumers. The raisers of vegetables are prompt, and attentive. We shall state one instance in proof of it. A few sweet potatoes, raised here, (inferior to be sure to those of Carolina) were sold in our market at the price of two dollars per bushel. A great many applications were made for slips, but no one succeeded in keeping them over the winter. This spring, we found several of our cultivators for the market, had on their own account, and risk, imported them from the south, and are raising them with spirit. We have no doubt of their success. We are confident they will be regularly for sale in Boston market, from this time forward. We have had experience this spring of their hardihood. They encountered a severe frost on the sixth of May, after having been transplanted from a hot bed, where they were made paternally tender. They were cut down by the frost, but have started again more freely than the common potatoe. They are now one month earlier, than any we ever raised, and we feel no doubt that they will produce an abundant crop, and those which will not sell, will furnish the best possible food, for pigs, cows, and poultry. This is no speculative theory, but the result of four years constant observation and experiment. we have no idea of its being an object of general culture, but it will, and must form a part of the cultivation for the market, and of gentlemen, who feel a taste for horticulture.

[To the Trustees of the Massachusetts Agricultural Society.]

Roxbury, May 14, 1822.

GENTLEMEN,

I AM induced to make some communications to you on the subject of Horticulture which may probably occupy a larger portion of our next number, (if it shall please you to countenance them) than we have generally devoted to this branch of agricultural labour. The reasons for doing it are, that it cannot be denied, that the American cultivators are less experienced in horticulture, than in any other branch of the agricultural art. It cannot be questioned, that while by the spirited attention given to general cultivation, we have made rapid advances towards the state of improvement, which exists in the most cultivated parts of Europe, we are lamentably deficient in gardening, and in the cultivation of fruits and flowers. In fact, with a few exceptions, we are ignorant of the ameliorations which have taken place in Europe in this branch within the last twenty years, and which much exceed the aggregate of improvements for one hundred and fifty years preceding, from the time of Evelyn and Olivier de Serres, to that of Sir Joseph Bankes, and of the equally enlightened horticulturist, Thomas Andrew Knight, Esq. whose experiments and remarks form an era as distinguished in horticulture, as that which the great chemists of the present age have produced in that important science.

It is not to the discredit of our country, that we have been so late in our attention to this subject—we have been engaged in pursuits more immediately interesting—in subduing our soil from a state of nature—in furnishing subsistence to our rapidly increasing population, in laying the foundations of states, which may flourish when Europe, overstocked, shall be unable to give support to its unwieldy population. But the more settled parts of the United States, particularly New England, have arrived at the second state of improve-

ment and cultivation. Their soil has been subdued—their population is full, if not redundant. They have acquired capital, and they now require and demand some of those luxuries, which ease and competence *will* obtain at any price.

If it be true, as we have heard, that ten dollars have been paid for a single dessert of early strawberries, it is time, that we should meet this demand, and furnish luxuries, innocent luxuries, for the table, at more reasonable rates.

We are *utterly* destitute, in New England, of nurseries for fruit trees on an extensive scale. We have no cultivators on whom we can call for a supply of the most common plants of the smaller fruits, such as strawberries, gooseberries, raspberries of the superior kinds—we have no place to which we can go for plants to ornament our grounds—we have not a single seedsman, who can always furnish us with fresh seeds of annual flowers on which we can place a reliance. These are trifling evils compared to the want of *bread*, but when we are filled with abundance, we look round for something to gratify our tastes.

Let those, who please, laugh at the absurdity of talking seriously of the importance of raising ornamental trees, shrubs, and herbaceous flowering plants, let them ridicule the zeal, which would furnish us with all the varieties of fruits, which grow from Palestine to Archangel, which would supply our tables with lettuce in February, and green pease in March, yet there are few of these laughing gentlemen who would not gladly see and taste these rarities, and they must be had, and will be had in spite of ridicule. They are in truth as rational sources of pleasure, and as just objects of pride and display as a fine carriage, or superb dresses. They, in truth, give more general pleasure ; for while the coach and the muslin robe are chiefly gratifying to the owner, those who cannot afford either the one or the other, *can feel*, and often do feel, more exquisitely, the pleasures derived from the display of the beauties of flowers, or the taste of the delicious fruits of nature. The cultivator then of fruits and flowers is

much less selfish. Their sweets are not produced for him alone. He can derive little pleasure from them, but by their distribution.

It is not my intention to obtrude my own remarks on this subject upon the public; I have made as little progress as most of my fellow citizens, in this delightful, ornamental, and as I think useful art.

Having recently received the transactions of the Horticultural Society of London, I shall make such extracts from them as appear to me to be new in our country, and calculated to advance the art of gardening. A FARMER.

P. S. I may from time to time make some explanations or notes with the view of rendering the several extracts more useful.

To shew the utter incompetency of our *own* nurseries (if the few we have can be dignified with the name,) I will simply state the fact, that one hundred roots of strawberries, all of which were nearly dead, sold at the late sale at auction for a greater price than fine plants of approved sorts, would be sold for in England, and that raspberry plants sold at such a price, as would have given me six hundred dollars, had I chosen to break up my raspberry plantation and send the plants to auction; and I could have guaranteed better plants and better sorts than any which could be expected in a promiscuous importation, and as good as can be found in Europe. This shews the *demand*, and the *inadequacy of supply*.

I shall commence my extracts from the Horticultural Transactions by some remarks on annular excisions of the bark of fruit trees, with the view of rendering them more prolific, and to bring them earlier into bearing. I introduced this topic into notice many years since from the same excellent authority, and no man who has tried Mr. Williams's plan of girdling or ringing grapes can doubt its value in our climate. It secures the grape against mildew, ripens it several weeks

earlier, and makes the fruit larger and more delicious. This many years experience of myself, and my friend Mr. S. G. Perkins, and many others has most abundantly confirmed; nor have any evil effects been found to result from the practice on the grape. But we should not do justice to the question if we did not add, that Thomas Andrew Knight, Esq. the individual most distinguished in Great Britain for his accurate knowledge of the physiology of plants, although he admits the tendency of this process to promote early bearing in fruit trees, yet doubts, and perhaps more than doubts, whether it does not on the whole, impair the vigour, and diminish the longevity of the trees so treated. I do not understand that his objection extends to the grape and other plants so productive of wood, neither do I believe the objection would apply with so great force in our country, where the growth is so much more rapid, owing to the greater heat of our summers, than it is in Great Britain.

ON A METHOD OF IMPROVING THE PRODUCTIVENESS OF FRUIT TREES. IN A LETTER TO THOMAS HALE, ESQ. ASSISTANT SECRETARY, BY GEORGE HENRY NOEHDEN, L.L.D. F.L.S, &c. READ JAN. 7, 1817.

DEAR SIR,

In communicating to you the translation of a small tract, which has been sent to our President from Germany, on a method of improving the productiveness of fruit trees, you will allow me to accompany it with a few remarks. The author of the tract in question, who is a clergyman in Saxony, founds his proceedings upon the principle, that a certain controul, to which the *sap* in trees may be subjected, will have the effect of producing a greater degree of fruitfulness than would exist, if it were left to its natural course. He did not, indeed, set out with this hypothesis, when he made his experiments; but he was, in the process of these, ultimately led to it. He obtains his purpose by making annnal excisions of the bark, o n the branches of fruit trees, or, as

he calls it, *ringing* the branches; that is to say, cutting rings in the bark. The notion, that barrenness in fruit trees arises from too free and strong a flow of the *sap*, and that by diminishing and checking this, fruitfulness may be obtained, is by no means new, but pretty generally current. It is obvious, therefore, if a mode could be found out of modifying and regulating the sap, that the means would thereby be afforded of rendering almost every tree fertile. This however, is a problem, which has hitherto not been solved, though we may perhaps acknowledge, that some steps have been made towards it. It may be that the society, on looking at the translation alluded to, will think the attempt of Mr. Kempel, who is the writer of this tract, to be of this description, that is to say, to have contributed towards the solution. The manner of proceeding, which has been recommended by different persons, is various; all agreeing in this point, that the flow of the sap ought to be checked. Old Henry Van Oosten, the Leyden gardener, whose book appeared, translated from the Dutch into English, in the year 1711, in a second edition mentions several means to be resorted to. One is, to transplant the tree frequently; see p. 18. Another, to bore a hole in it, and drive in an oaken plug, which he says is the old way. But as the most effectual he considers the repeated pruning of the tree in summer, by which, as it causes the tree to bleed, the current of the sap is naturally weakened. Pruning would otherwise be deemed to add to the strength of the tree if it were done before the sap is in motion; but in practising it from the month of April, when already much of the sap has been wasted, you lame, as he says, the luxuriance of the trees, by the wounds you inflict upon it. He rests upon the idea that a superfluity of sap produces nothing but twigs, and moderate sap produces fruit. Some of the modern gardeners are afraid of pruning a luxurious tree; but while they entertain their fears, they are thinking of winter pruning, or early spring pruning. Marshall, in speaking of pear trees (p. 156. 4th edit. of the Intro-

duction to Gardening) observes, that their luxuriance may be checked, and fruitfulness promoted, by stripping off pieces of the bark, from the stem and the branches. He notices likewise, the practice of making notches, crosswise, in the bark, for a similar purpose. What is thus recommended for pear trees, may be applied to all other fruit trees under similar circumstances. Care should be taken in cutting the notches, that they do not reach the pith. Nicol (in his Forcing and Fruit Gardener, 4th edit, p. 240) suggests the expediency of cutting the roots of a luxuriant tree. That training has an effect upon fruitfulness, by operating as a check upon the sap, is generally conceded. Our old friend Van Oosten already was aware of this, though he does not seem to have made much application of this remedy; for, p. 11, he says, "A bough that is bent, commonly bears much fruit, but small, except it be bent from the beginning. The reason is clear, the pith of the wood runs crooked, and so its sap does not flow violently." Another method of checking the sap is mentioned in a paper published in our Transactions, vol. 2. p. 222. The whole seems to lead to this conclusion, that luxuriance in trees and fertility are at variance: and that the vigour which produces shoots and branches in abundance, is subversive of what we value more, namely fruitfulness. This growing principle must be moderated to answer the gardener's purpose. This may perhaps also be inferred from the circumstance that aged trees, or such as are in a weak, or even sickly state, are often very productive. I will not presume to account for these facts: but as facts I believe they must be admitted. Whether it be the abundance of the sap, or the rapidity with which it moves, that proves an obstacle to the formation of fruit, future observations may perhaps be able to decide. If we were to suppose the quickness of the sap's motion to be in fault, it might appear, that owing to a disproportionate activity, time was not allowed for the separation and decomposition of those particles, by which the fruit is formed. Some circumstances seem to point out the

he calls it, *ringing* the branches; that is to say, cutting rings in the bark. The notion, that barrenness in fruit trees arises from too free and strong a flow of the *sap*, and that by diminishing and checking this, fruitfulness may be obtained, is by no means new, but pretty generally current. It is obvious, therefore, if a mode could be found out of modifying and regulating the sap, that the means would thereby be afforded of rendering almost every tree fertile. This however, is a problem, which has hitherto not been solved, though we may perhaps acknowledge, that some steps have been made towards it. It may be that the society, on looking at the translation alluded to, will think the attempt of Mr. Kempel, who is the writer of this tract, to be of this description, that is to say, to have contributed towards the solution. The manner of proceeding, which has been recommended by different persons, is various; all agreeing in this point, that the flow of the sap ought to be checked. Old Henry Van Oosten, the Leyden gardener, whose book appeared, translated from the Dutch into English, in the year 1711, in a second edition mentions several means to be resorted to. One is, to transplant the tree frequently; see p. 18. Another, to bore a hole in it, and drive in an oaken plug, which he says is the old way. But as the most effectual he considers the repeated pruning of the tree in summer, by which, as it causes the tree to bleed, the current of the sap is naturally weakened. Pruning would otherwise be deemed to add to the strength of the tree if it were done before the sap is in motion; but in practising it from the month of April, when already much of the sap has been wasted, you lame, as he says, the luxuriance of the trees, by the wounds you inflict upon it. He rests upon the idea that a superfluity of sap produces nothing but twigs, and moderate sap produces fruit. Some of the modern gardeners are afraid of pruning a luxurious tree; but while they entertain their fears, they are thinking of winter pruning, or early spring pruning. Marshall, in speaking of pear trees (p. 156. 4th edit. of the Intro-

duction to Gardening) observes, that their luxuriance may be checked, and fruitfulness promoted, by stripping off pieces of the bark, from the stem and the branches. He notices likewise, the practice of making notches, crosswise, in the bark, for a similar purpose. What is thus recommended for pear trees, may be applied to all other fruit trees under similar circumstances. Care should be taken in cutting the notches, that they do not reach the pith. Nicol (in his Forcing and Fruit Gardener, 4th edit, p. 240) suggests the expediency of cutting the roots of a luxuriant tree. That training has an effect upon fruitfulness, by operating as a check upon the sap, is generally conceded. Our old friend Van Oosten already was aware of this, though he does not seem to have made much application of this remedy; for, p. 11, he says, "A bough that is bent, commonly bears much fruit, but small, except it be bent from the beginning. The reason is clear, the pith of the wood runs crooked, and so its sap does not flow violently." Another method of checking the sap is mentioned in a paper published in our Transactions, vol. 2. p. 222. The whole seems to lead to this conclusion, that luxuriance in trees and fertility are at variance: and that the vigour which produces shoots and branches in abundance, is subversive of what we value more, namely fruitfulness. This growing principle must be moderated to answer the gardener's purpose. This may perhaps also be inferred from the circumstance that aged trees, or such as are in a weak, or even sickly state, are often very productive. I will not presume to account for these facts: but as facts I believe they must be admitted. Whether it be the abundance of the sap, or the rapidity with which it moves, that proves an obstacle to the formation of fruit, future observations may perhaps be able to decide. If we were to suppose the quickness of the sap's motion to be in fault, it might appear, that owing to a disproportionate activity, time was not allowed for the separation and decomposition of those particles, by which the fruit is formed. Some circumstances seem to point out the

abundance of the sap as the cause which is to blame; for several of the remedies above mentioned are directed against this fault, and are said to be efficient to the purpose of fertility. It may be added that transplanting is beneficial to many vegetables, besides trees, and improves their fecundity and good quality; and this is most readily accounted for by modification of the growing principle thus brought about. Moreover, it is sometimes found, that by confining the roots, for example, by narrow vessels, as by what is commonly called under-potting, the plants prove more fruitful; continued observation and attention may, at last, bring us to satisfactory results.

In adverting to the particular method, practised and recommended by the author before us, let me remark, that his practice of *ringing* trees, coincides exactly with that described by John Williams Esq. in a paper read before this Society May 3d, 1808, and printed in the first volume of our Transactions, p. 107. Mr. Williams does not call it *ringing the bark*, but *making annular excisions in the bark*, which is the same in meaning. Both, however, follow nearly the same plan, in cutting circles on the bark, with this difference, that Mr. Williams has only applied the operation to *vines*, and Mr. Kempel to several other sorts of fruit trees, though the former intimates, that he thinks it may be applicable to fruit trees in general. It is curious that both authors seem to have been impressed with the idea that they were discoverers of that method, and it is interesting to see how they both met in the same road. The German writer observes, that the proper size of his bark-ring is a *quarter of an inch* in width. Mr. Williams relates, that he made his annular excisions first an inch broad, but he found, in the succeeding year, that the vines which had undergone that discipline, did not push freely, and seemed to be injured. The alburnum had been too much exposed. He therefore reduced the rings to between one eight and two eights of an inch in width, which

is very nearly Mr. Kempel's dimensions, and the trees did well. Those vines were in the open air; to such as were in a forcing house, and sheltered from the weather, it did not seem to be prejudicial to make the excision wider, for the bark likewise was in those houses more quickly reproduced. Mr. Williams lays a particular stress upon the entire removal of both the outer bark, or *cortex*, and the inner, *liber*, in making those rings; for if you leave any part of the latter, the bark forms soon again, and all your trouble is lost. Mr. Kempel, likewise inculcates it as a precept, that both the outer and inner bark must be entirely stript off so as to leave the wood, or *alburnum*, perfectly bare. They both state, that the fruit in consequence of *ringing* or annular *excision*, becomes much larger; and Mr. Williams adds also, better flavoured, and that it ripens more quickly. He explains these effects by Mr. Knight's theory of the downward circulation of the sap; Mr. Kempel attributes them to a retarded motion. There is a very important consequence, which the latter gentleman states as resulting from his operation of ringing, namely that you may force young trees to show fruit, before they otherwise would do. This really is exercising great power over nature, if experience should bear out that position. One might doubt it, as it is an opinion commonly received, "that in young trees, which have sprung from seeds, a certain period must elapse, before they become capable of bearing." Thus our President thought, according to what he has expressed, p. 39, Transactions Horticultural Society, Vol. 1. where he adds, that he believes that period cannot he shortened by any means. Pruning and transplanting, he says, are both injurious: whether he will be induced to attribute a more favourable influence to the operation of ringing, must depend upon the degree of confirmation, which Mr. Kempel's assertion may receive from farther experiments.

I remain, Dear Sir, Your obedient Servant,

G. H. NOEHDEN.

Albany, Picadilly, December 16th 1816.

P. S. Since I wrote the foregoing letter, I have, through the kindness of our worthy Secretary, Mr. Sabine, received some additional information, which I will beg leave to subjoin. Mr. Sabine observes, that the mode of stripping a portion of bark, in the shape of rings, from the branches of trees, for the purpose of curing their bareness, has been known and practised, for some time, in England, and commonly been denominated by gardeners, *circumcision*. But he intimates, that it had been confined to *pear trees*, and also states, that the ring was generally cut rather wide, and that the branches, though they bore fruit, were essentially injured by the operation, and ultimately perished. This effect unquestionably ensued from the misapplication of the remedy, in taking off too great a quantity of the bark, and thus reducing the tree or branch to a state of exhaustion, instead of merely checking, and moderating its vigour. It seems, therefore to have been only a practical manipulation, known among gardeners, of which the reason and general principle was not understood. This is, moreover, apparent from its having been usually applied to no other than *pear trees*. Perhaps, the frequent barrenness of these trees, arising from a superabundance of sap, was the cause why they, in preference to other trees, were subjected to that operation. I have mentioned, that Mr. Williams tried it upon *vines*, but though he hints at it, as no improbable idea, that other trees might perhaps be equally benefitted by the process, he was not aware of its efficacy in general. We know, at present, on the authority of experience, that it has answered with *pear trees*, *plum treee*, and *vines;* and combining this with general reasoning, I think, we cannot be wrong in concluding that it will in a similar manner, be advantageous to *all* fruit-trees, whose unproductiveness is judged to be owing to an exuberance of sap. The unskilful way, in which it has been practised upon *pear trees*, involving frequently the destruction of the

tree, rendered the expediency of recurring to that remedy problematical; and it seems that nobody in this country, before Mr. Williams, reflected upon the means of preventing the injurious consequences, which were apt to follow. Yet the cause appears obvious; but so does many a truth, when it is once discovered.

The dimensions which both Mr. Williams and Mr. Kempel assign to their rings, as best answering the purpose, nearly approach to one another; and they may be taken as rules to go by. But it is not to be said, that no deviation from them should be allowed; on the contrary, it may be advisable to vary, according to the comparative strength of the tree, and the quantity of sap, with which it may be presumed to be filled. The ring should never be made so wide as to defy the effort of the tree in again covering the wound, during the season; for that deduction of fulness, which is adequate to make up the loss of the bark removed, seems just to place the tree in that medium of vigour, which is favourable to the production of fruit. Mr. Sabine has farther favoured me with an account of a *pear tree* at Kew, which I will transcribe in his own words. It will be seen, that the remarks made before, are applicable in this instance. The partial decay of that tree is attributable to the manner in which the operation has been performed. "There is a *pear tree*," says Mr. Sabine, "against one of the walls in the kitchen garden, belonging to his majesty, at Kew, which underwent this operation about fifteen years ago. The part operated on was near the root; and as it was a principal arm, about one half of the whole tree, became influenced by the operation. This half has uniformly borne fruit, the other has been nearly barren. The portion of stem, which was laid bare, is about six inches wide, and it has not been again covered by bark. That part just above the ring is considerably larger than the part below it. The ends of the branches appear in much decay, and there are but very few young

shoots thrown out from the sides, whilst on the other part of the tree, the shoots as usual, proceed from the extremeties as well as from the sides of the main branches. I apprehend from the present appearance of the whole, that the portion of the tree, which by the separation of the bark, has been deprived of supply from the root, cannot survive many years."

OBSERVATIONS ON, AND DETAILS OF, SOME EXPERIMENTS IN RINGING THE BARK OF FRUIT AND OTHER TREES AND PLANTS. By JOSEPH SABINE, Esq. F. R. S. &c. SECRETARY. READ MARCH 21, 1820.

THE publication of the papers, on *ringing the branches of fruit trees*, by Dr. Noehden, in the second volume of the transactions, has directed the attention of several Fellows of the Society, and other persons, to the subject. The results of these experiments, which have been communicated to me, appear to be of sufficient importance to be collected together; as they will serve as guides to those who may wish to make further trials, and will assist in ascertaining the causes, of the variety of effects, which appear to attend the operation on different plants.

The practice of ringing, or circumcising the branches of fruit trees, in order to make them yield more produce, is not novel; it is not stated to be so, in the papers alluded to; but though occasionally used, it does not appear that much enquiry has been made, to discover the most advantageous method, or the proper seasons, for performing the operation, nor have any reasons been distinctly assigned why it should be so particularly successful in some instances, and so entirely devoid of benefit, in others. The production of a greater crop of fruit, is the most important of the advantages expected to ensue from ringing: this increase must, of course, arise from an additional number of blossoms, and in some cases, from blossoms, that would not

have existed in the ordinary course of nature, without the intervention of ringing; the formation of flowers, is therefore, the point to be looked to, in considering the application of the practice. In those trees where the blossom buds are produced on the wood of the preceding year, it is not to be expected that the operation will have any effect on the quantity of produce, in the year, in which the rings are cut; and it is on trees of this character, that ringing has been chiefly practised. On the contrary, in those trees which produce the flowers on the present year's wood, (though not much has yet been learned from experiment, with respect to them) the effect of the ringing will be seen immediately.

The interruption of the passage of the descending sap, by the incision in the bark, causes, in some cases, an alteration in the quality and appearance of the fruit. In many instances, in the first produce after the operation; it is considerably increased in size, on the ringed branches; it is also ripened earlier in the season, and that circumstance is accompanied, with very extraordinary improvement, in those colours of the skin, which indicate full maturity. Taking therefore into consideration the expectation of a change both in the quantity and quality of the fruit, it will be obvious that the spring is the most proper period to cut the rings; the bark is then very readily detached, and the work may therefore be done with greater ease at that season. With respect to the width of the incision it must be recollected that the separation of the communication of the bark, in every case, though in some more than others, materially affects the health and vigour of the branch. As long as the separation is kept up,* so long may the formation of

* Since this paper was read to the Society, Mr. Williams, of Pitmaston, has mentioned to me, that a ligature on the branch, by a waxed string tied tightly round it, early in May, produces nearly the same effect of ringing. In this case, although the downward flow of sap, from the leaf is in some measure prevented, the alburnum is not injured by exposure to the air, and

additional blossom buds be expected: but the restoration of the communication, which will be the consequence of the union of the bark, from the opposite sides of the ring, puts an end to the whole of that unnatural process, which the interruption had occasioned. It is therefore requisite, that the bark should be separated, nearly the entire season, in which the ring is made, more especially in those trees, where an increase of the succeeding year's bloom, is intended to be produced; but it is not advisable, in any case, to keep the ring open for a long period; the deposit of alburnum, at the upper edge of the ring, caused by the stoppage of the passage of the descending, sap increases the size and weight of the branch, in that place, so much, whilst the under part, remains of its original size, that it is very liable to be broken short off, at the ring, if the bark be suffered to remain long disunited.

Having taken this general view of the subject, I proceed to the consideration of the application of the practice to the different kinds of fruit trees, as far as my own observation, or the experiments of those with whom I have corresponded relative to it will enable me.

All apple trees form an abundance of additional flower buds, in consequence of ringing; but if the ring be wide, the ringed branches, especially young ones, speedily become sickly; it is therefore advisable, with them not to cut rings of greater width, than what will be closed up, at the end of the same season, or early in the following year; besides, it seems that the improvement in size and beauty, is obtained chiefly in the first year of the ringing, therefore the rings of apple trees certainly should not exceed a quarter of an inch in width, on strong branches, and they should be narrower on small and weak shoots. Fresh branches on the same tree, ought to be annually ringed, and thus a succession of produce be uninterruptedly kept up.

there is less obstruction given to the ascending sap, so that the health of the branch is preserved.

Mr. Twamley of Warwick, exhibited, to the Society, in the autumn of 1818, some specimens which fully illustrate the practice of ringing apple trees. In the spring of 1818, he ringed several espalier trees, some of which were the Minshull crab, the Court-pendu apple, and the French crab; the two former produced some of the most remarkable specimens of the kind, from the ringed branches, as to beauty, which perhaps were ever seen; the colours being most brilliant, whilst the apples from the unringed branches of the same trees, had their usual appearance; but the *size* of neither of these kinds was altered, whilst the French crabs from the ringed branches, were enlarged in an extraordinary degree, as well as improved in appearance. The same trees in 1818, had borne great crops on every branch, whether ringed or unringed; but in 1819, they did not produce a single apple, except on the ringed branches, which then afforded a good crop, but the fruit, though very beautiful, were not so splendid in appearance as in the former year, and the French crabs were not larger than usual. Mr. Twamley has observed that the rings made in horizontally trained branches do not so readily close up as those on upright growing ones; and he found an advantage in protecting the exposed part of the wood at the ring with grafting clay. Mr. Hunt of Stratford-upon-Avon, having observed Mr. Twamley's success, tried the same experiments with trees in his own garden, in 1819, particularly upon the Ribston pippin, the nonpareil, and scarlet nonpareil. He made his rings a quarter of an inch wide, at the end of April and beginning of May, and in the winter covered the open rings with clay and cowdung. The Ribston pippin filled up its rings more rapidly than the other kinds: in consequence, as I suppose, of its being more vigorous in its general habit. The fruits of all in comparison with the produce from the unringed branches, were, exclusive of the additional quantity, either altered in size or in colour, but did not keep so well: and Mr. Hunt thought them inferior in flavour, which is the natural consequence of

the increase in size. The Ribston pippins, from unringed branches, were of a pale greenish yellow, and averaged eight inches in circumference; those from ringed branches, were of a rich golden colour, with brilliant red streaks on the exposed side, and were ten inches in circumference. The nonpareil tree, (usually called the green nonpareil) was trained to a wall, and its produce, consequently, was all large; but those from the ringed branches, were highly improved in colour, and measured twelve inches round. In the scarlet nonpareil there was no difference in colour,* but those from ringed branches, measured ten inches in circumference, while those from unringed branches measured only eight.

Pear trees do not suffer so much from ringing, as apple trees; the ring, though kept open, does not appear to induce weakness, so speedily: the ringed branches do not make shoots in such numbers, nor in such vigour, but they retain their health, sufficient for all purposes of produce, many years. Indeed, so little injury is done to pear trees by ringing, that several branches can be kept cut, at one time, without danger, and a continuance of crop, may be ensured, by occasionally taking out a branch which may have become decayed, and replacing it with new wood. In healthy and clean shoots, the bark of pear trees, soon restores itself over the ring, unless it is cut very wide. The effect of ringing them is a certain production of blossom buds, so much so, that even young trees may be brought into bearing, by this means. Mr. Twamley, in the spring of 1818, ringed a branch of a young and luxuriant Jargonelle pear tree, which had been planted only two years; the ring closed itself at the end of the summer; but the branch next year blossomed and brought to perfection four good pears, (shooting vigorously also) when no other part of the tree showed the least appearance of bloom, and even in the present spring it shows

* The scarlet nonpareils from ringed branches, in Mr. Twamley's garden, were, however, much more brilliant in colour, than the other apples on the same tree.

two branches of blossom, which are the only ones upon the tree. Mr. Kempel mentions that he had increased the size of pear trees by ringing: this is most probable, but an instance of it has not occurred to my observation.

The branches of plum and cherry trees sustain injury and become cankered by ringing; but as they are always free blowers, an increase of blossom by artificial means is not wanted to make them produce fruit. The same observation is applicable to peach and nectarine trees; so that all the stoned fruits cultivated in this country must be excluded from the list of trees on which ringing may be usefully performed.

Vines are much benefited by ringing; their blossom is produced on the shoots of the same year, in sufficient plenty: for additional blossom, the use, therefore, of ringing, is not required, but increase of size, early ripening, and improvement of flavour in the grapes, all result from ringing. Mr. Williams, in a paper on the subject, in the first volume of the Transactions, has sufficiently described the mode of proceeding with the vines for this purpose.

In none of the experiments, the termination of which I have yet become acquainted with, has success attended the operation of ringing the Fig tree. The branches which have been circumcised have put forth on the young wood, abundance of small Figs, such being in fact, the flower of the tree, which subsequently enlarges and becomes the fruit, when ripe. This production of fruit has even been effected, in trees which had not attained sufficient age to throw it out naturally in the regular course, but in such cases, the crop has fallen off, without ripening. The branches of the Fig tree suffer by ringing; the incision should, therefore, when made, be very narrow, to admit of speedy closing, it not being necessary for the production of the blossom, (which is formed on the young wood,) to keep it so long opened, as is required in other fruit trees.

The preceding are all instances of the effects of ringing in the production of fruit: but as these incisions in the bark cause the formation of flower buds, when none, or only a few, would otherwise have appeared, the practice may be extensively and usefully applied to ornamental shrubs and plants, which do not readily blossom. I believe this use of ringing has not before occurred to the advocates of the practice, and as I am acquainted with some cases of perfect success, it will be worth while to enumerate them, in order to induce to further trials.

Mr. William Baxter, gardener to the Comte de Vandes, at Bayswater, has given me the particulars of three experiments, made in the spring of 1818, which fully answered his expectations. The first was with a Waratah Camellia, which he had never been able to make flower; he cut a ring round the stem; so close to the root, that he was able to cover the incision with the mould of the pot, in which the plant grew; the ring closed at the end of the year, and the plant remained in good health, but made rather short shoots, on which an abundance of flower buds were formed, and these blossomed perfectly in the following spring. The second experiment was on a plant of Aublétia Tibourbou, in the stove; the ringed branch speedily broke into flower; it was the first blossom which the plant had yielded, but its other branches did not blow; the ringed branch is still alive, and its bark nearly reunited. The third experiment was on branches of Pyrus spectabilis; those which were ringed produced last spring, abundance of splendid flowers, which were succeeded by ripe fruit; and they are now again full of blossom buds, the other branches showing little promise of bloom.

In addition to the above, I can state, that one branch of the Passiflora alata, in Messrs. Loddiges' stove, was ringed, in 1818; in two months after it produced flowers; it also did the same abundantly last year, whilst another branch which remained unringed, was entirely unproductive, in

both seasons. Mr. George Loddiges, in giving me this account, mentioned, that he had tried the same experiment, with other Passifloras, and with some stove plants, but that he had not succeeded. His failure may probably in some cases be attributed to his having made the rings too narrow: in the soft stemmed plants, which he ringed, the bark would reunite very rapidly, and if the separation is not kept open, sufficiently long, the desired effect will not be produced.

DWARF INDIAN CORN.

[From the Transactions of the London Horticultural Society.]

A SPECIES of Indian Corn which can be raised in England and Paris can surely be made to succeed in Massachusetts, and we ought to have all the varieties of that plant, which will grow in our climate.—EDITORS.

"Some heads of a dwarf Indian Corn grown in the garden of the (Horticultural) Society were exhibited. They were produced from seed sent to the society (1819) from Paris, by M. Vilmorin, under the name of Mais à Poulet—a "Chicken Corn." The plants do not exceed eighteen inches in height, are very hardy, not being injured by the Spring frosts—the seeds vegetate perfectly well in the open ground, and do not require the aid of artificial heat to raise them. They should be sown in drills, about two feet apart and the plants when thinned, should stand at six inches in the rows from each other. Their heads which will be perfectly ripe before the end of September, are about three inches long one only being usually produced on each plant; when a second blossom appears, it is generally abortive. The grains are of a bright yellow colour, round and small, and the flour they contain appears to be peculiarly white and fine. The varieties of the Common Maize, (the Zea Mays of Linnæus) are nume-

rous, and it is possible, that this may be a very dwarf and hardy sort, referable to this species—but it has been suggested that the Mais à Poulet may be the plant described by Molina in his Natural history of Chili as growing in that country, with a smaller grain, which furnishes a meal whiter, more light, and in greater quantity, than the common kinds of Maize. Molina considers his plant to be a distinct species, calling it Zea caragua, and distinguishes it as having its leaves senated or denticulated; the margin of the leaves of the Mais à Poulet is not smooth but edged with minute hairs which give a slight appearance of serrature. Should it be thought desirable to make the experiment, the perfect hardiness of this plant fits it well for field culture."

So far proceeds the notice in the Horticultural Transactions and to those who are not aware of the coldness of a British summer it would not seem to be encouraging. In that climate they cannot ripen our Indian Corn without artificial heat, and therefore the variety above described may with us be of some value, in our cold seasons, and certainly an object of curiosity. We cannot agree with the writer in the Horticultural Transactions that it is probably the plant described by Molina, for they admit, there are no serratures on the leaves, and the hairs mentioned, as giving the appearance of serratures, are common to all the varieties of Maize, or at least, their is a roughness on the edges of the leaves, palpable to the eye, and touch.

We have some apprehension, that it is only the dwarf corn grown on the Missouri, or the small Canadian Corn—but at any rate we should invite M. Vilmorin, whose trees and plants have received most abundant encouragement here, to send us a few ears of it, and it is hoped some of our public spirited merchants in the French trade, will import it next fall.—Editors.

SOME SLIGHT NOTICES OF THE LARCH TREE—(PINUS LARIX,) KNOWN IN VARIOUS PARTS OF OUR COUNTRY UNDER THE SEVERAL NAMES OF JUNIPER—HACKMATACK AND LARCH. By JOHN LOWELL.

For some reason which I am unable to explain, this tree so highly valued in Europe, as a timber tree, and particularly for its durability, when buried in the earth, has never been thought of so great value with us. It grows more rapidly, than the *real* Juniper, commonly called the red Cedar, and is more durable for posts, than that plant. It will grow on any soil, and rapidly in soils entirely different from those, in which it is usually found. I have them growing, in pure sand, without the smallest apparent admixture of loam, and on barren gravel—a gravel, which will scarcely support grass. I have larch trees in such soils 18 to 24 inches in circumference, and thirty feet high, of thirteen years growth.

The English variety is more beautiful and vigorous than our own. Col. Pickering first called my attention to the difference. He has plants of the English larch, which he observed had *larger cones*, and a fuller and fairer growth and foliage.

That he was right, as he generally is, from the accuracy with which he examines subjects which fall under his notice, will be apparent from the following extracts from the horticultural Transactions of London.

HORTICULTURAL TRANSACTIONS.

"June 6th, 1820. The duke of Athol having sent to the Society specimens of five kinds of Larch grown on his estate in Scotland accompanied by observations on them, this communication was read. The kinds were

1st. The Common Larch (i. e. the Larch of Great Britain) with red or pink flowers. In the duke of Athol's plantations on mountainous tracts at an elevation above the sea of 1500 or 1600 feet, this tree has, at eighty years of age arrived at a size to produce six loads of timber, appearing

in durability and every other good quality, to be likely to answer every purpose, both by sea and land.

2d. Pinus Larix, from the Tyrol, with white flowers. This kind seems not before to have been noticed. It is very remarkable in its appearance from the whiteness of its cones, which in the specimen sent were erect, and not cemuous or drooping. The shoots are much stronger than those of pinus larix with red cones. The foliage of the two is similar.

3d. The weeping Larch, from the Tyrol. It is different from the pinus pendula or black Larch of North America. It grows to a large size.

4th. Pinus Microcarpa, (a small fruited or coned Larch) the red Larch of North America. There are some trees of this kind fifty years old on the Athol estates, but *they do not contain one third* as many cubic feet of timber as Pinus Larix at a similar age. (That is, the *English Larch* furnishes three times the quantity of timber in fifty years which our own common Larch does.) The wood is so ponderous that it will not swim in water. Its cones are much shorter than those of the Pinus Larix, its branches weaker, and its leaves narrower.*

5th. The Russian Larch. The appearance of the tree is coarser than that of Pinus Larix. It is of much slower growth, and its aspect is different from that of the other species. The bark is ash coloured. The leaves come out so soon that they are liable to be injured by spring frosts. The flowers are like those of the American Larch. It is supposed to be the Pinus Larix of professor Pallas, and was received under the name of Pinus Sibirica.

From this account it is plain, that it would be our interest and is a duty we owe to Agriculture, to import the cones of these varieties of Larch from Scotland, which we hope some gentleman acquainted with that country will do, send-

* In some of these particulars, the differences noticed by Col. Pickering agree with the statements of the Horticultural board.

ing this description with directions to see that the varieties are all obtained.*

Before I close this article, I beg leave to call the attention of my brother farmers, to the success, which has attended my planting of small patches of forest trees. It is not that this success has been greater in the whole, (though every one who passes along the high road must perceive it has not been less) than that of other gentlemen but it is in one or two respects very remarkable, and exceedingly encouraging to that class of intelligent *farmers*, not those who cultivate for ornament, but those who do it for gain, on for subsistence.

Having but little land, and of that little a small proportion which was good, I was reduced to the necessity of planting my trees wholly on barren and unproductive soils. In 1807 and 1808 and 1809, I planted with forest trees from two to three acres of this land, one half of which was pure sand with so little mould or loam as not to admit of the growth of grass for the scythe. Its whole value per annum was not 10 dollars. This land I covered with forest trees, the White Pine, the Larch—the Fir Balsam, and in the better parts, the Oak of various sorts, the Maple, the Beech, the Ash, the Elm, the Locust, the Spruce, the Spanish Chesnut, and some few others for variety.

The land was about half of it ploughed and kept open with potatoes for 2 years and then abandoned to the course of nature. The pines were taken up out of the forest with great care, not more than 5 feet high. Wherever I had the cupidity and impatience to introduce a larger tree I either lost it or it became sickly. In some places I planted acorns, and as to my hard wood forest trees, transplanted from the woods, finding they looked feeble and sickly when they shot out, I instantly sawed them off at the ground or near it.

* The cones of the Larch will probably be ripe in November, and should not be taken off before that time. The seeds should be planted as soon after they arrive as possible, or early in the spring.

This required some resolution, but I have been abundantly paid for it.

The result of this experiment is this, that in a period from 13 to 15 years I have raised a young, beautiful and thrifty plantation comprising almost every variety of tree which we have in Massachusetts, which are now from 25 to 35 feet high, and some of which, the thriftiest white pines actually measure from 9 to 12 inches diameter. The loppings, and thinning out of these trees now furnish abundant supply of light fuel for summer use, and upon as accurate a calculation as I am able to make, I am convinced, that the present growth, cut down at the end of fourteen years from the planting would amply pay for the land at the price it would have brought. I do not mean to say, that this would be the case in the interior, but in the vicinity of Boston and of Salem, I am sure this experiment may be tried with perfect success. In Chelsea, Lynn, Cambridge, West Cambridge, some parts of Brooklyn, Wenham, Danvers, and many other old towns, I see tracts of land which can produce but little, of any value, and which would in fifteen years, at the expense of ten days labour for the first four years on each acre, produce trees that would be worth the present price of the land. I am persuaded, that this is no loose calculation. Of course, I say nothing of the effect, which such a system would produce on the appearance of the country—on the improvement of the landscape—these considerations are too remote from the views of farmers to have much weight, but they may think it of some importance, if we prove to them, that if at thirty years of age they should plant in these old towns, now dependent on foreign supply ten or fifteen acres of wood, it will be worth more 30 years after, than the best 20 or 30 acres of their farms, and in some instances, near the great towns, the sale of the wood would equal the value of their houses, barns, and stock. If wood and timber should increase in price, the next 30 years as much as it has to my knowledge, done within the last 30, which is 150 per cent.

it will do more than is above stated. I hope I shall be excused for recurring again to a topic, which I have so often urged upon our farmers, and my excuse must be, that I have perceived, that in all the European countries, timber and wood for fuel are among the most interesting topics of discussion, and lands producing them are considered the surest, safest, and most profitable estate—more so than money in banks, or at compound interest. No state in the union is in more danger than Massachusetts of suffering from a scarcity of wood for timber and fuel, and as the neglect of planting cannot be remedied within a third or half a century, I think it the duty of a faithful Centinel, intrusted with an agricultural publication, to give constant and repeated notice of the danger.

I owe it to the cause of truth, to state, that I committed a very grave and important mistake in planting. From the desire to cover my land more rapidly, and to thicken my plantations for ornament, I planted my trees too near each other. I now suffer from this very natural cupidity. I cannot thin them out without hurting the beauty of the landscape, and the trees shew how much they suffer by the yearly loss of their lower branches, which will always die if they have not air and moisture, and like other misers, I find myself unwilling to part with the treasure I have possessed.

This however will not apply to the farmer who raises from a desire of profit. His trees should be placed at least twenty-five feet asunder in every direction, he will not fear, as I have done, the use of the axe to thin out his trees. I could now cut out light fuel for the supply of my family for two years, without injuring my plantation, but I have not courage to do it.

I am aware, that two objections will be made to this statement—First, that the scale of experiment was a small one, not exceeding two acres and an half. It is true; but the experiment was sufficiently large to test the utility of the measure. Secondly, that I disregarded expense, and put

down the cost to the score of luxury. This is not true; I am sure that the whole labour did not exceed twenty days work of one man on an acre, and with respect to one acre of it, not five days labour (in the whole) of one man, has ever been expended upon it.

I planted the trees in two or three days, and left them to their fate; but I consider two conditions, indispensable to success. First, that as to pines of all sorts, and other evergreen trees, they should be put out not more than four years old; *not pruned* for they will not bear the knife well. Secondly, That as to hard wood forest trees transplanted from the woods, they should be instantly cut down to the ground or near it.

It is only because we have no nurseries of forest trees in New England, that I speak of the barbarous practice of transplanting and instantly heading down. Young trees from a nursery would in all respects be preferable.

[To the Corresponding Secretary.]

DEAR SIR,

SUBJOINED you have some observations in relation to the treatment of young fruit trees, and the effects produced by grafting and budding them in the nursery and garden, and showing the good or bad results agreeably to the choice which may be made of the scions which are used for this operation. Although they are by no means new, or in any degree original, yet from the forgetfulness of some, want of information in others, and carelessness in many, these rules are omitted in many cases to the great injury of the proprietors of orchards and gardens.

I am sorry to say that in many instances the evil begins in the public nurseries where men ought to know this branch of their business above all others; but as many nursery men raise trees merely to sell, and care but little what becomes

of them after they get out of their grounds, the greatest negligence is observable in their treatment of young trees, which are grafted or budded from any young thrifty tree which they consider of the sort they are in want of; and as the most vigorous shoots will take with most certainty, these are usually employed for the purpose. The subsequent treatment of the stocks is no less injudicious, as dead wood is generally left above the bud, and round the graft, by the hasty and inattentive manner with which the knife is used; hence arises, in many instances, the lapse of years before we get our trees to bear: hence arise the canker and gum which we find in almost all trees taken from public nurseries.

Private nurseries are not subject to the same evils, because there are fewer stocks to attend to, and more labour and time allowed to the portion of work to be done; but even here the same defects are often seen. Although many gentlemen who have abundance of knowledge on this subject, and who are in the habit of attending to their nurseries themselves, may think these remarks superfluous, yet there are some who may be benefited by them.

It is for you, however, to determine whether they are worth a place in your Agricultural Repository.

The health, habits and fruitfulness of a tree depends upon the habits it receives in the nursery.

First. The health of the tree depends in part on the soil of the nursery, which should be free from manure, and as nearly a good virgin soil as possible. This soil will give sufficient nourishment to the plant without forcing it into luxuriance; and when it is transplanted from the nursery it will not be checked in its growth if the soil into which it is put has never been manured. Young trees are more healthy by being put into pure natural earth than if manured; and when age and decay come upon them they will feel the benefit of this stimulus, if applied, with more effect.

One of the principal causes of ill health or canker in young trees taken from nurseries is, that the nursery men seldom

take the trouble to cut off the wood above the bud close to its shoulder, leaving a smooth and sloping surface. If they were to do this the wound would heal the first season; but they usually leave a small piece from which the top has been *sliced* off without care or reflection half an inch above the shoulder of the shoot or bud, and of course beyond the reach of the sap which issues from it, and from the edge of the live bark to cover the cut. This piece of wood dies, and it will soon communicate its disease to the sound bark and wood, until the evil is beyond the reach of the knife.

Second. The habits of a tree depend in a great measure on the quality of the scion or bud which is put into it, and on the direction given to its branches in the training and pruning them.

The scion or bud should never be taken from a tree that is unhealthy, or that is not in bearing; and the strong and luxuriant shoots should always be rejected. It is even better never to take them from a tree that is very luxuriant in its growth.

If it be an apple, or pear tree, select your scions from the end, or near the end of the fruit bearing branches. The buds of the shoot should be plump, full and healthy. The middling sized scions are the best. The young tree will assume the character of the scion which is inserted into it, and will grow moderately or otherwise; fruitfully or barren, according to the judgment used in selecting the scions and pruning its branches.

If it be a peach that you are to bud, take the fruit bearing shoots of a moderate size with double and triple buds. These will put out blossoms in the spring, which may be rubbed off when the wood bud has opened, and the second year your tree will show fruit. Whereas trees grafted or budded from strong gluttonous shoots grow vigorously for many years without giving the cultivator any returns for his labour. I have trees, both pears and peaches, in my garden, which were taken from a public nursery more than ten years ago,

and which have always been growing with rapidity, and in apparent good health, but which never produced me any fruit; and I have others which I have budded myself, which have been constantly in bearing from the second summer after the insertion of the bud or graft. This variance I attribute entirely to the difference in the qualities of the scions or buds.

Third. There is no doubt that the quality of the soil contributes also very powerfully to the fructification of fruit trees. Different fruits require different soils to make them perfect in their kind; as the Doyenné, or Saint Michael pear produces best in a gravelly soil, while the brown Beurré requires a more nutritious earth and a more sheltered situation to bring it to perfection. But as a general rule, it is better for young trees to be placed in a good, but not a rich soil; as the fructification will be retarded by too rapid a growth: but the fecundity of the tree may be effectually secured by a judicious choice of scions, and a healthy virgin soil that is light and warm. Yours, &c.

A NORFOLK GARDENER.

BAD WINTER KEEPING OF COWS.

[To the Corresponding Secretary.]

Roxbury, May 25, 1822.

DEAR, SIR,

I HAVE been more immediately led to this subject by having within a few days past visited a number of farms within ten miles of Boston. The too general practice of feeding cows in the winter with only meadow hay, (which has less nourishment than good straw) because they cannot sell it and have plenty of good English hay which goes to market, is I think very bad policy. If meadow hay must be used *in part*, let it be *salted* when put in the barn, and fed in racks, in the yard by day, and *good hay*, with vegetables of almost any kind in the barn, night and morning, and if bran

or oil cake meal can be procured, both of which generally may be had at reasonable prices, they ought to be freely used, even though the cow should be dry.

I had myself an instance of the good effect within three years past, having purchased a high priced and very fine cow, in the autumn, which I put out for the winter, in as good hands as any farmer in the country, to be fed as his own stock were; the whole summer, after coming home, though in good pasture, she never gave more than five or six quarts at night milking, the next winter she was kept at home, when she was well fed with *good hay*, and mangel wurtzel, Swedish turnips or carrots once a day, (*though dry*) and the whole of the next summer she gave from eight to ten quarts at night milking, and has continued ever since, in the summer season, by the same treatment, to do equally well.

Let the meadow hay be used freely for *litter* and the animals be carded or curried; by keeping their skins clean, I am satisfied they enjoy better health; and will consume less food—besides the pleasure of seeing them so—only observe the miserable state in which a large proportion of the cows you meet about the roads appear, going to or from pasture, night and morning—or indeed a large number that get their only subsistence on the road sides and occasionally breaking into enclosures, where they see good feed, to the great annoyance of neighbours, and contrary to the laws of the state, as well as the bye laws of the towns.

I think it of more importance than is generally believed, that the *male* to which the cow is sent, should be of a really good breed, even although the calf is not intended to be raised—the veal will be better, and I believe there is no doubt also, it has some effect on the milk for the next season.

By the treatment before mentioned, I doubt not most farmers that now keep 10 or 12 cows in the common way, by selecting *one half* the number of their richest and best mil-

kers, would make more butter than they now do, and there is also no doubt, that the manure of well fed animals is infinitely superior to that from mean fed ones—and I believe the quantity would be as great as from double the number.

We often see in large families where only *one* cow is kept, *and that one well fed and attended to*, that she gives an abundance of milk and cream, and also makes 6 or 8 pounds of butter per week, it is not so much owing to the qualities of the cow, as the care and attention of keeping her well fed and regularly and thoroughly milked.

I really wish our farmers generally, would be prevailed on to raise a greater quantity of vegetables for the use of their stock, than they have been in the habit of doing. Swedish turnips and Mangel Wurtzel (of the true sorts) are very easily raised, and every farmer has land suitable for them, when he might not have suitable soil for *Carrots*, which I think give the richest milk, but are much more expensive in cultivating. These roots with care, even in pits, out of doors, may be preserved till May and June, and yield generally double the quantity that the same land would yield in potatoes. Indeed with me I have usually had more than three times as many bushels per acre, and with I think no more labour. Mangel Wurtzel indeed will by their thinnings and trimmings, if done with care, pay all the labour of the crop, and give a fine evening food for the cows, and is also an excellent food for swine.

A small patch of corn *broadcast or in rows*, and cut after it gets two and a half or three feet high, will give a fine evening food for cows, by cutting it at about one foot from the ground, it will grow again for another crop.

I am dear Sir,

With much respect,

JOHN PRINCE.

[The statements of the unsuccessful candidates for premiums, whose crops fell in some degree, short of those, which obtained premiums, with the account of the culture.

It is not enough to grant a few premiums, limited by our small pecuniary means. The interests of agriculture require, that we should shew that the premium crops were not extraordinary, were easily attainable by all, were in fact almost equalled by others. It is by convincing our farmers, that good culture *generally* will receive its own remuneration, and not by shewing them that *one* man, at great expence, has raised a great crop, that you can hope to improve our agriculture at large, and to induce all to do their best :—when you can shew, that men in various counties, possessing no peculiar advantages, have at the same moment arrived at nearly the same result, you produce a more settled and rational conviction of the benefits of good cultivation, than you could do by any course of premiums. For this reason we shall publish the letters of the unsuccessful candidates, [not in fact unsuccessful,] but who were surpassed by one or two others. They may indeed have been the most skilful, but a little difference of soil, or a shower or two in summer on one estate which was denied to another, may have produced the difference.] EDITORS.

Westford, Dec. 5, 1821.

To the Chairman of the Committee on Agricultural productions.

DEAR SIR,

I FORWARD you by the bearer a statement of the course pursued with a piece of land of one acre, as to a crop of corn, and have here enclosed the statement of the amount.

The ground was a piece which had been laid down and mown six or seven years. I ploughed it late in the fall of 1819 and in the spring of 1820 I planted it with corn and manured it only in the hill with compost, from which I had a decent crop of corn. Early in the spring of 1821, I ploughed the ground coarsely, and spread eighteen or twenty cart loads of coarse manure, then harrowed, and then ploughed the ground very fine, and on the 20th of May planted it in rows, the kernels about nine inches apart, and the same quantity of manure in the rows as I spread, which was a composition of horse, hog and door manure. The first and third time of hoeing, I hoed without ploughing; the second

time I ploughed and took from the stalk all the suckers which came out next to the ground. The corn growing exceedingly rapid, I followed cutting all the stalks which did not set for ears, and those which grew smutty. The corn was a twelve rowed kind, which I have raised a number of years, and more forward than my neighbours generally, and I know of no improvement which I could make except in the furrowing. This season I drew my plough but one time in a row, the ground being stoney, and putting the corn on top of the manure made the row too high; whereas drawing it twice would have made more room for the manure, and laid the roots lower.

If my efforts should merit any encouragement from the Society, it will be gratefully received by

Your most obd't serv't. SAMUEL WRIGHT, Jun.

NOTE—Mr. Wright's crop was 78 bushels and 5 quarts of Indian corn on one acre.

Salem, November 15, 1821.

To the Committee on Agricultural productions.

GENTLEMEN,

IN compliance with the Society's regulations, requiring each claimant under the head of agricultural experiments, to state the quality and general cultivation of the lot, the previous season to that on which a claim is made for the society's premium, I offer the following, with a claim for the society's premium for raising the greatest crop of Carrots on an acre.

The land is situated in Salem, county of Essex; has been broken up about four years; was planted the past year with onions, beets and carrots, ten loads of mixed mussle bed, rotted potatoe tops and barn manure being put on; the soil black and heavy.

The present year eight loads of privy manure, for one yoke of oxen, were put on, spread in four hours, and sown with about one pound of seed: 19th of April the lot was ploughed; 11th May, one day sowing; 11th and 12th June, four days weeding: 9th July, two days weeding; 16th and

17th July, forking; and from 26th October, twelve days labour in digging, measuring, weighing, &c. in all twenty-two days and four hours labour.

The quantity produced on the acre was five hundred and twenty-eight bushels, which at forty-seven bushels (being very well cleaned) to the ton, gave 11 ton, 4 cwt. 2 qr. 20 lb.

Respectfully, your humble serv't.

JOHN DWINELL.

Roxbury, 30th November, 1821.

To the Committee on Agricultural productions.

GENTLEMEN,

HAVING raised a considerable quantity of vegetables the past season for consumption on my farm, which being small, the house lot only 57 acres, and keeping a large stock for the size of the farm, induces me to raise largely of roots; the quantity however is much smaller than I had last season, from the same puantity of land under cultivation, owing I suppose to its being principally from pasturage newly broken up.

800 hills of summer squashes (on less than ¼ acre) which yielded largely, and were daily gathered for a long time and boiled for a large stock of swine, with the thinings of Mangel Wurtzel, &c. &c.

656 bushels Mangel Wurtzel at the harvesting, besides a large quantity of thinnings during the season, and also of leaves at harvest given daily to cows, swine, &c. cost 7 cents per bushel. I think a greater quantity of this root can be raised on suitable soils, than of any other vegetable, requiring not more than one third of the labour that *carrots* do.

400 bushels carrots—on same space of ground adjoining the preceding crop; cost 17⅔ cents per bushel.

537 bushels Ruta Baga. Three fourths of them were raised on land broke up this year, and the sods burnt by an Irishman well acquainted with the business, and no other manure on the three-fourths, calculating his wages and fuel, with the labour on the crop otherwise, the

cost is 8⅔ cents per bushel—were sown 29th June, too late by a fortnight, but the land could not be got ready sooner.

745 bushels potatoes besides early ones used during the season. They were of thirteen different sorts, (none of them had been cultivated by me more than one year before; most of them were new to me this year) for the purpose of selecting the most valuable. The best were the *Elam* potatoe, from Rhode Island, and are uncommonly fine. The second best from General Derby, of Londonderry, N. H. and supposed to be the Buckman potatoe from Maine, a new sort. The third from Hamburgh, imported by T. B. Wales, Esq. are very fine, and yield well. There being so many sorts, and planted on so many different spots, it was impossible to keep the costs.

15 bushels sweet potatoes of very good quality, and the cost of cultivation not more if so much as others; they yield more from the same number of hills, and do best on light sandy land.

37 bushels Russian radish—the produce as large as any vegetable I ever raised; some of them weighing fourteen pounds. They keep very well through the winter; cattle are very fond of them, and the thinnings were boiled among other vegetables for swine. I think their cultivation should be encouraged. General Derby at L. has this year raised more than one thousand bushels altogether on his corn hills (one each) and he thinks it no injury to the corn. They do not seed the first year, like other radishes, but must be cultivated like turnips.

400 bushels turnips of different sorts; some the yellow Aberdeen, from Mr. Young of Halifax, thought to be the best of any for the table, and keep well; some red tankard and white Norfolk. All were *imported* seeds, and not sown till the last of July, and principally on

burnt soil. I find when *English* turnip seeds are used, they should be sown from two to four weeks earlier than our own old fashioned sorts, as the tops grow very large, and the roots do not begin to swell till the tops are nearly done growing.

Cabbages, a considerable quantity, but did not head well; the soil too dry for them. Besides a considerable quantity of vegetables from a large garden, not more than two hundred bushels have been, or will be disposed of otherwise, than for the use of the farm. Last winter I kept in pits near one thousand bushels of Ruta Raga and Mangel Wurtzel, which did so well, that this season I have nearly as many. The trench dug about one foot deep, and four feet wide, and long enough to contain one hundred and fifty or two hundred bushels each: they are then piled about 3½ feet like the roof of a house, covered eight or twelve inches with straw or meadow hay, and then with the earth thrown out of the trench and enough added to make it, when the weather becomes quite cold, about a foot thick. Be careful not to cover too thick *at first*, as the heat of the vegetable is great, when confined in so large a body, and would destroy them.

I am, Gentlemen,

with much respect, yours,

JOHN PRINCE.

Salem, November 15th, 1821.

GENTLEMEN,

AGREEABLE to the directions of the Trustees of the Massachusetts Agricultural Society, requiring each claimant to state the quality of land, its previous product, &c. I submit the following in support of my claim heretofore entered for the society's premium for raising the greatest quantity of potatoes on an acre the present year.

The lot is situated by Bridge street, so called, in Salem, county of Essex, and owned by Messrs. Waitt and Peirce. It was broken up in 1819; soil black, low and heavy. For about twenty years previous to which, it had been mowing land. The last year potatoes were raised on the lot, nine cart loads of barn manure, about twenty bushels white seed potatoes, and whole labour then employed in production of crop, nineteen and an half days.

The cultivation, &c. the present year has been—1st. Four loads of barn, and five of privy manure, for one yoke of oxen, were put on the lot.

2d. The seed, an equal proportion of whites, blues and long reds, making in all about twenty-four and an half bushels.

3d. Two days ploughing and half a day furrowing, with one yoke of oxen, no driver; 17th and 19th of May, three days planting ; 14th June, three and an half days weeding; 16th July, 3 days hilling; and from 1st October, ten days digging crop, making in the whole twenty-three days labour.

4th. The amount of crop measured, five hundred and eighteen and an half bushels on the acre.

Accompanying you have the certificates of Surveyor, &c.

Respectfully yours, &c.

JOHN DWINELL.

To the Committee on Root Crops, &c.

I Thomas Shepherd, of Northampton, certify, that I caused a piece of land across the end of my cornfield to be surveyed on the 16th October last, which measured one acre and eight rods of ground, and after sticking off the eight rods picked and husked the corn in the field, carted it to the barn floor, and carefully kept it by itself; set all my hands thrashing it on the first day of the Cattle Show: brough tit to the show in the afternoon, and sold it under the inspection of hundreds of people. That the corn was perfectly hale and

dry, and measured eighty-seven bushels and twenty-four quarts, all produced from one acre of land sowed in rows about four feet apart.

I further certify, that I caused an acre of land adjoining the above to be measured off, which was sowed in alternate rows of corn and Ruta Baga; the corn rows being eight feet apart; that the same produced sixty-one bushels and twelve quarts of corn, and one hundred and sixteen bushels of Ruta Baga. That the whole field of nearly twenty acres (except the first acre) was sowed in rows eight feet apart, and that the half acre which yielded $61\frac{12}{32}$ bushels was not better than a fair average of the field. That the ruta raga sowed between the corn rows was almost burnt up with the drought.

The first acre I enter for the society's premium of 30 dollars for the greatest quantity of corn on an acre, and the second acre for the premium of 30 dollars for the best mode of raising corn.

The ploughing, manuring and preparation of the ground was the same in both cases, and the following statement contains the facts in relation to the culture.—The land is the driest part of my farm, and the corn *suffered much* from the drought. The field contains nearly twenty acres, which with four others of about the same size lying on the banks of the Connecticut, comprizes that part of my farm cultivated under a five years rotation of crops without manure, except the corn year, when it is spread on profusely. It had lain in grass (without any manure being put on it) three years when I commenced ploughing it last fall; manured it this spring at the rate of nearly fifty loads to the acre taken fresh and green from the barn yard and pig stye, and all made during the winter (except some heaps of compost not very good) by the cattle, sheep and pigs, from straw and oats mixed with the stable manure; cross ploughed the land an inch or two deeper than the fall ploughing, covered up the manure as fast as it was spread about from the carts; harrowed the turf fine with light seed harrows; furrowed the land back to back

in ridges four feet apart, the tops of the ridges being two feet higher than the bottom of the ditches; put on the harrows across the ridges, and filled up the ditches with fine rich mellow earth a foot deep well mixed with manure, on which the corn was carelessly strewed along *very thick*, sprinkling gypsum on it before covering it up. I find by my journal that I began to sow the corn on the 10th, and and finished it on the 26th day of May; that I hoed it three times, beginning the first week, and ending the last week in June. That this is the best mode of raising corn does not admit of a doubt in my mind, and that it it is so, ought be received as an axiom.

I have tried every plan for several years past, and this is the third year that I have sowed it in rows from six to eight feet apart, with a variety of roots and plants between them. The first year I got 44¼ bushels to the acre, or rather from half an acre; the second year 50 bushels, and this year $61\frac{12}{32}$ bushels. It is my belief that 75 bushels corn and 3 or 400 bushels Ruta Baga (or 2 or 300 bushels potatoes) can be raised on an acre of good rich ground cultivated in this way; but the corn must be sowed *very thick* in rows eight feet apart, and the ditch well filled with fine mellow earth, and *plenty of manure*, nor is it an expensive mode of culture considering the great crop to be obtained. The cross ploughing and furrowing is extra work, but this it is, with the aid of the harrows that makes the great crop, if sowed in wide rows, as my experiment this year proves, having got at the rate of $122\frac{24}{32}$ bushels to the acre in this way, and in the narrow rows, with more exhaustion of the land, only $87\frac{24}{32}$ bushels. With regard to the expence of cultivating a single acre of land, the Trustees will please to consider that I do not cultivate any one acre of land with a view particularly to a premium, and therefore cannot ascertain the expence. I would observe however that the extra expence of cultivating corn in this way beyond what it is in the usual

way in hills is inconsiderable. They will also decide which of the two is most meritorious, him who cultivates his whole farm alike both as to labour and manure, or him who devotes all his energies to get a great crop, from a single acre, and robs the residue of his farm for the benefit of a premium.

THOMAS SHEPHERD.

Northampton, November 20, 1821.

To Benjamin Guild, Esq. Boston.

AN ESSAY, ON THE ADVANTAGES OF MANURING WITH GREEN CROPS. By S. W. POMEROY, ESQ. FIRST VICE PRESIDENT OF THE SOCIETY.

THAT eminent chemist, Sir Humphrey Davy, who has shed so much light on the *practice* as well as on the philophy of Agriculture, observes, that "*land* when not employed in preparing food for animals, should be applied to the purposes of the preparation of manure for plants; and that, this is effected by means of green crops, in consequence of the absorption of carbonaceous matter in the carbonic acid of the atmosphere. That, in a (*naked*) summer fallow a period is always lost in which vegetables may be raised, either as food for animals or as nourishment for the next crop."

The rewards offered by the board of Trustees of the Massachusetts Agricultural Society for more than twenty years successively, for the best experiments on ploughing in green crops for manure, appear to be still unclaimed; there is of course good reason to believe that the practice is very limited in the Commonwealth. To shew the advantages that result from such a system, elsewhere, the following is transcribed from a letter that I addressed to John S. Skinner Esq. of Baltimore, the able and zealous Editor

of the AMERICAN FARMER, and which appeared in that paper last November.

"Among the various plants applied as green dressings for the restoration of worn out soils, the WHITE LUPIN stands pre-eminent in those climates that will permit their growth between the periods of *harvest* and *seed time*. That a trial may be made with them, I have forwarded half a bushel of the seed, which I trust you will cheerfully distribute for the benefit of our Southern brethren. They were sent to me from Fayal; and the following account, which I have collected, of the effects of their culture, will, at least, serve to convince us, that "the Earth *ever subservient to the wants of man*," when exhausted by his insatiable demands, requires from him but a little *mechanical* aid, to enable her still to 'spread his walks with flowers and his table with plenty.' The island of Fayal though in the same parallel of latitude with Maryland, is subject to a temperature seldom above 80, or below 50 degree of Fahrenheit. The soil is thin, and incumbent on *scoriæ* and other *undecomposed* volcanic substances; but naturally exceedingly fertile. For a long period of time, every part accessible to the plough, has been in tillage; and, with the exception of selected patches shifted for flax, under alternate crops of wheat and Indian corn, (the latter being the chief food of the labouring classes.) Such a system of severe cropping; the resources for manure very limited, and without the advantage of improved implements or modes of culture, caused a visible deterioration of the soil; the crops lessened from year to year; partial importations were resorted to; and the *well born* of the island became seriously apprehensive of the most distressing consequences.

"Providentially, some 15 or 20 years since, the *White Lupin* was introduced from Italy, and though it came by accident, to a people strongly bigotted to old practices of husbandry, the cultivation soon became general.

"The wheat and corn are harvested in August, the land is soon after ploughed and Lupins sown on the *surface*, or but slightly covered, at the rate of two bushels per acre. In February they flower, and are then turned in with the wheat, corn or Flax in their several rotations. By this management a progressive improvement of the soil has become apparent: there are no longer apprehensions of famine; a very redundant population subsists; and besides supplying 10,000 on the neighbouring island of Pico, where scarce any thing but the *vine* is cultivated, a surplus is often sent to other islands, and in some instances to LISBON!

"Lupins are ranked by Gardeners among the hardy annuals, but I am not able to say what degree of frost they will bear. From a single experiment I am led to believe that, owing to the droughts to which our climate is subject, not much advantage will be derived by sowing them on summer fallows as a dressing for winter crops. Their application to spring crops, in those sections of our country where they can be grown in season for that purpose, will probably become the first object of experiment."

The culture of crops to plough in for manure, is by no means a modern practice. The *Romans*, 1800 years ago, according to Pliny, cultivated and applied Lupins for manure in the same manner *precisely* as they now are in Italy, and in Fayal.* But this plant is supposed to be unsuitable for our climate:—we should not despair, however, of finding a substitute.

It has been asserted by Sir Humphrey Davy, "that it is a general principle of chemistry, that in all cases of decomposition, substances combine much more readily at the moment of their disengagement, than after they have been regularly formed. And in fermentation beneath the soil the fluid matter produced, is applied instantly, even

* See Pliny's Nat. Hist. Book 17, chap. 9. book 18, chap. 14—27.

while it is warm, to the organs of the plant, and consequently is more likely to be efficient than in manure that has gone through the process. He also remarks, that it may be doubted whether there is as much useful manure at the end of a clean (*green crop*) fallow, as at the time the vegetables clothing the surface were first ploughed in. That the action of the sun upon the surface of the soil, tends to disengage the gaseous and volatile fluid matters that it contains; and heat increases the rapidity of fermentation; and that in the summer fallow (*with green crops*) nourishment is rapidly produced, at a time when no vegetables are present capable of absorbing it."

Such expositions shew the importance of selecting plants that will arrive at sufficient stature and succulence, in season for spring crops; and it may be well to enquire what vegetables there are within our reach, that can be successfully applied.

Clover is unquestionably one of the greatest improvers; but a season is lost by its application. There is another objection—*weeds* and *wild grasses* that rise with it, the first season, ripen and shed their *seeds;* the effects of which, are severely felt in the succeeding tillage rotations.

Buck Wheat has been most used in this country for green dressings; and doubtless with good effects on summer fallows for winter crops; but, besides not coming on early enough for *spring crops*, it often leaves the land foul with its own *seeds;* and is allowed, on all hands, to be a great exhauster.

I am aware that an opinion generally prevails that, if plants are cut in the *milk*, as it is termed, or ploughed in before they ripen their seeds, that the soil is not exhausted! I presume this theory is founded on the supposition, that while the stalk and foliage are green, the supplies are drawn from the atmosphere; but so soon as they become *shrivelled*, the seeds are perfected with food exclusively from the soil.

This reasoning is plausible, and possibly correct as to certain classes of vegetables, but the position should in all cases be admitted to a very limited extent.

The hum of *bees* in a field of *buck wheat*, and the flavour of the *honey* from the hives in the vicinity, afford pretty convincing proofs that the atmosphere does not alone produce such *sweet* results!

There is another consideration that should govern us in the selection of plants for the object in view. It cannot be doubted, but that the soil contains, not only *materials* suited to particular vegetables, but that several species require the same *principles* to furnish their food. Now from an experiment, well defined, twenty years ago, with oats *cut in the milk*, and from constant observation of the effects of their culture on my neighbour's land since, I feel a thorough conviction that they exhaust the soil of those materials or principles necessary for *clover* and other grass, to a degree very destructive to those all important crops.

And such have been my impressions that their deteriorating effects on the soil would be lasting, that a few years since, I restricted a tenant, in a lease which he now holds, from sowing *oats*, even to cut in the *milk*, under a penalty of an increased rent of ten dollars an acre,—I wish to be understood, that these observations are meant to apply solely to dry soils—such as are suitable for Indian corn or wheat—and in our dry climate.

Millet is a plant, the cultivation of which is increasing, and as an important article for *fodder*, or for *soiling*, will probably within a short period be more fully appreciated, that seems well adapted to sow on summer fallows for winter crops, or to turn in late in the fall to inrich the land for the ensuing spring tillage or other spring crops. Of the exhausting properties of millet I am ignorant, but from the bulk of the stalk and foliage, it must make copious returns to the soil. The cheapness of the *seed* is much in favour of its extensive application.

Of all the vegetables that may be best substituted for the Lupin, RYE, in my opinion, is the most promising. This plant, too much neglected to produce food for brutes, but, what is to be lamented, *too much cultivated to furnish poison for men;* possesses all the ameliorating properties for the soil, that we are accustomed to derive from any of those belonging to the *leguminous* tribe. *Rye*, withstands severe drought; and without manure it feeds millions in some countries, from soils little better than blowing sands.

Those soils inclining to loam, it will continue to inrich by a succession of ripened crops, and it is a fact within my own observation, that rich *friable* loams, which have been exhausted by repeated, *unmanured*, crops of *Indian corn*, have been in some measure restored by two or three successive crops of Rye. If it will do this with the *dry stubble*, what may we not expect from it *green*, when buried rampant and succulent in the soil?

In order to ensure a sufficient growth, in season to plough in with *Indian corn* and most of our *root* crops, Rye should be sown the beginning or by the middle of August, and much thicker than when intended for a crop of grain. If it gets too forward before winter, it should be fed down with *light stock* or mown. Winter Rye sown early in the spring grows rapidly, and will generally arrive at sufficient stature in season to be turned in as manure for Ruta baga. Rye ploughed in when in full flower and *Millet* sown, which it will bring forward with great luxuriance, and that in its most succulent state, turned in for *Wheat*, may be one of the best fallow preparations for it that can be devised; and is probably the cheapest and most convenient process to restore an exhausted soil. At the same time it should be considered, that *gypsum* acts more powerfully on soils thus prepared.

I have been induced to submit the foregoing remarks, not only from an impression that such a system, as has been imperfectly suggested, will tend to increase our pro-

ducts immediately, and ensure a progressive improvement of the soil, but from a firm conviction, that it is one of the most efficient resources that the farmers of New England can command, to enable them to meet the crisis that awaits them; and for which, perhaps, they are not fully prepared.

By the noble efforts of the State of New York, those fertile regions in the west, near three hundred miles from boat navigation, will soon be reached by water within forty! And I apprehend that the question cannot be too soon propounded—How is the *Massachusetts farmer* to meet in the market on equal terms, the flood of agricultural productions which will then inundate the shores of the Atlantic?

Is it by *Canals* in an uneven confined territory, on which the most profitable staple is grazing? We have no *inland seas* mingled with mighty rivers, to feed levels through rich alluvial tracts of an hundred miles in extent! No inexhaustable reservoirs of *brine*, within twelve feet of the surface, seven times stronger than the waters of the ocean; and from which the whole Atlantic seaboard may be supplied with the heavy article of SALT as *cheap* and of a *purer quality* than can be obtained from any part of the world! Neither do our mountains afford those valuable and ponderous minerals, the transportation of which on canals, contribute to the main support of those costly undertakings in Europe!*

On the other hand; would not greater benefits flow, was every dollar *of capital* that can be spared from commerce and manufactures, appropriated to those vast improvements of which the soil of Massachusetts is susceptible? And should a mania for water works arise, it may have ample and profit-

* The canal from Lake Erie to the Hudson, 363 miles, will probably be finished in 1823. For 240 miles on its line, not a single yard of rock is necessary to be removed! The average cost of the whole canal is estimated at $13,800 per mile. The expenditure for canals in England average $22,000 per mile. The Middlesex Canal is said to have cost $17,000. Mr. Gallatin supposed the medium cost of canals in America would amount to $31,000 per mile See North American Review for January, 1822. Art. xii.

able gratification, by cutting *trenches* on the ridges, and *tunnels* through the hills, thereby draining the numerous ponds, swamps and bogs, creating luxuriant meadows; and by erecting *hydraulic machines* on the innumerable streams and brooks, to irrigate the parched fields on their borders! It is by such enterprizes that the Massachusetts farmers may expect to prosper, aided by a regular system of management, with the application of all the *manures* that can possibly be collected, on one third part of the soil that usually receives them, and by enriching the remainder by that joint process of nature and art, *ploughing in of green crops.*

Brighton, 3d June, 1822.

[From the American Farmer.]

The immense importance of durable timber for farming as well as naval purposes, gives an interest to every judicious, or even plausible speculation on the subject. The communication from a person of Commodore Porter's intelligence, will of course attract attention: especially when viewed in connexion with his official station, which peculiarly demands the best attainable knowledge of the matter. Believing the opinion he has given, which is, and probably has been for ages that generally received, to be erroneous; and thinking it possible that I might throw some light on the subject;—I submit to your readers the following observations on

THE FELLING OF TREES FOR TIMBER.

In the 22d number, volume III, of the American Farmer, is a letter from D. Porter, (commodore Porter) on "The best time to fell Timber with a view to its durability"; in answer to one from the Editor, requesting a communication on the subject. The commodore, "availing himself (as he says) of the knowledge and experience of others, in support of his opinion," states this to be, that "the most proper season for felling timber, with a view to its durability, is in the winter, when the sap has ceased to circulate." This corresponds with the opinion I have heard generally expressed, ever since I noticed observations on the subject; and the precise time in the winter is fixed, by tradition, to "the old of the moon in February."

Many years (perhaps half a century) have elapsed, since I have been inclined to doubt whether the animal and vegetable kingdoms were under the government of the moon. The commodore thinks its "influence nearly if not quite as powerful as [that of] the Sun." He asks, "why that body [the moon] whose attractions can raise the tides and influence all animal creation, should not have the power to put the sap of vegetables into circulation, assisted as it is by capillary attraction?"—As heat is essential to give motion to the sap in plants, and the heat of the sun is adequate to that effect, it is not necessary to seek for any other cause; still less to resort to one merely conjectural. No means yet tried have discovered any heat in the rays of light from the moon.

If any effects on vegetation were ascribable to the moon's attraction, yet in an entire revolution, its different distances are not so considerable, as to produce very different effects. Besides, combining its different periods, it is as near the earth in its decrease, as in its increase; and its power of attraction must be the same in both cases. The sowing of seeds, therefore, and their vegetation, and the growth of the plants proceeding from them, cannot, (as the commodore seems to suppose) be influenced by the phases or appearances of the moon. The notion of the moon's "influence on all animal creation," if not a novelty, I believe to be altogether visionary. Anciently, indeed, mad people were supposed to be affected or influenced by the moon; and thence were called lunatics: but that opinion seems now to be exploded. I am indeed satisfied (contrary to the general belief) that *changes in the weather* have no dependance on the moon; but happen indifferently at all periods of its increase and decrease. It has not heat to raise watery vapours from the earth, or to suspend them in the air; and under the same aspect of the moon, the weather is fair at one place and foul in another.

No one can doubt that "dryness is favorable and moisture unfavorable to the durability of timber;" and in winter the

sap of trees is probably inspissated to a considerable degree; but no living tree is then "devoid of sap."—The important question, therefore, in relation to the felling of timber trees, is, I am inclined to think, not simply *when trees have the smallest quantity of sap*; but *at what season the sap they contain will most easily escape or be expelled.* The facts I am going to state may show this to be in the spring, when the sap is thinnest, and flowing in the greatest abundance.

In the year 1800, divested of public employment, and about to commence husbandman, I made a visit to the late Joseph Cooper, of New Jersey, one of the most intelligent farmers I ever knew, to converse with him on the subject of his vocation. Among other things, he spoke of *timber*; and stated the following facts. His farm lying on the Delaware river nearly opposite to Philadelphia, was exposed to the ravages of the British army while occupying that city. Pressed for fuel, his fences first fell a prey to their necessities. In the month of May, 1778, they cut down a quantity of his white oak trees: but circumstances requiring their sudden evacuation of the city, his fallen timber was saved. The trees he split into posts and rails. The ensuing winter, *in the old of the moon in February*, he felled an additional quantity of his white oaks, and split them also into posts and rails to carry on his fencing. It is now, said he, two and twenty years since the fences made of the May-felled timber were put up, and they are yet sound; whereas those made of the trees felled in February, were rotting in about twelve years. He then pronounced confidently, *that the best time for felling timber trees, for durability, was when their sap was vigorously flowing.* He said, also, that white oak and hickory trees felled at that season, would not be attacked by the worms, producing what is called "powder post." And added that hoop-poles of oak and hickory ought, for this reason, to be cut at the same season.

In the same year, accident threw in my way the late Oliver Evans' book on the construction of mills; to which

was subjoined a treatise of a Mr. Ellicott, a mill wright, on the same subject. Turning over some of the leaves of this treatise, I lighted on the passage in which the author directed *hickory* timber, intended for the cogs of wheels, *to be cut when the sap was running, that they might not become powder post.*—In the following winter (1801) being in Boston, and conversing with a friend from the country on subjects of husbandry, I repeated Mr. Cooper's observations, as above stated. This friend then mentioned a farmer, the well pole (or sweep) of whose well happened to break at a very busy time: that to supply its place, he cut down the first small tree that came to hand; and this was a white birch. The sap then running freely, he stripped off the bark, and put up his pole; and it lasted seventeen years. Had he put it up with the bark on, it would probably have rotted in a year; *the closeness of the birch bark preventing the escape of the sap.* A close coat of paint, laid on unseasoned wood, operates like the close birch bark, by confining the sap, and hastening its decay.*

More than fifty years ago, seeing a quantity of logs, with the bark on, piled up by a chair maker's shop, I asked him why he did not split them, that they might the sooner get seasoned. He answered, that so long as the bark remained on the logs, the sap remained in them, and they were more easy to be dressed and turned. ☞ Unless timber trees be cut when the sap is running, the bark cannot be *stripped* off; though with considerable labour it may be removed by the axe and drawing knife; but less perfectly.

The late Mr. Bordley (who was vice-president of the Philadelphia Society of Agriculture, from its formation in 1785, until his death) once told me, that when riding in the vicini-

* In confirmation of the opinions advanced by Col. Pickering, we can add, that poles cut from the green willow, the tenderest and least durable of our trees, in June, and stripped, became extremely tough and hard, so as to be applicable to many uses, such as ladders, &c. for which spruce is used. The loppings of all trees cut off in June become extremely hard, and will endure for years without rotting. These we know to be facts. EDITORS.

ty of Philadelphia, he met a master ship-builder, who had been viewing some trees for ship timber. Mr. Bordley mentioned to him the greater value of ships built with the timber of trees allowed to remain standing a length of time after their bark had been stripped off. The shipwright said he was fully sensible of it; the ships would last so much longer. Why then, asked Mr. Bordley, do you not adopt that practice? Because, said the shipwright, such timber becomes very hard, and costs much more labour to work it.—I have heard new settlers dispute, which was the best way of clearing woodlands; whether by girdling (chopping the bark all round the trees, to stop the circulation of the sap, when they gradually die) and letting the trees stand; and at once seeding the land for a crop: or by cutting all down at first, and burning. The advocates of the latter mode, said, that by girdling, and letting the trees stand, they became dry, and so hard as greatly to increase the labour of afterwards cutting them down.

"Dr. Plott [who wrote in the 17th century] says, it is found by long experience, that the trunks or bodies of trees when barked in the spring, and left standing naked all the summer, exposed to the sun and wind, are so dried and hardened, that the sappy part in a manner becomes as firm and durable as the heart itself. This is confirmed by M. Buffon, who in 1738, presented to the Royal Academy of Sciences at Paris, a memoir, entitled "An easy method of increasing the solidity, strength and duration of timber;" for which purpose, he observes, "nothing more is necessary than to strip the tree entirely of its bark during the season of the rising of the sap, and to leave it to dry before it be cut down.*"

But why should timber trees be felled in May, (or when the sap is freely running,) as in the case stated by Joseph Cooper; or barked and left standing until dry, according to Buffon, be more durable than timber felled according to the prevailing and popular notion, of the Old of the Moon in

* See the British Enyclopædia, article Tree; also Rees's Cyclopædia, article Timber.

February? For an answer I offer the following conjecture.—The thinner and more fluid any body is, the sooner and more perfectly I presume, it will evaporate. The sap of trees is doubtless more inspissated, or of thicker consistence, in winter than in the spring, when it is apparently thin and watery. In the latter state it will find its way, and escape, through the pores of the wood, with vastly greater ease and expedition than when, as in winter, it is much more inspissated. Molasses, condensed by the winter's cold, runs very slowly through tubes of a large size. In summer, the same molasses swelling to a larger volume, and becoming very thin, will pass through very small tubes, and, I believe through the pores of some sorts of wood. The same substance (molasses) exposed, in a small quantity, to the hot sun of summer, would soon discharge its more fluid parts, and at length leave, as I suppose, a solid substance behind: but if much diluted with water, would not the whole substance be nearly if not quite carried off by evaporation?—the same reasoning may apply to trees left standing, after being divested of their bark in the spring.

It appears by some English books, that their usual time for felling oaks is in the month of April, when the sap is running, and they can strip off the bark for tanning. But the commodore states, "*that in all their contracts for timber for naval purposes*, the influence of the moon on the sap is more guarded against than any other;" and he adds, what seems very extraordinary, that "more attention is paid to the *time of the moon* when timber should be cut, than to the *season of the year;* for (as before remarked) seeing the moon is at the same distances from the earth during its decrease as its increase, its power of attraction must be the same in both cases; and consequently all the *different effects* which tradition has ascribed to the *waning* and the *waxing* moon must be visionary.

The *maturity* of timber is quite another thing; and probably of more importance than the time of felling it. There is a point of *ripeness* when trees acquire their greatest solid

ity, strength and durable quality for timber. The late Dr. James Anderson,* says—"It is now well known that the best fir timber which comes from Riga, and other places on the Baltic, is the produce of the same tree that is commonly cultivated here [in Scotland] under the name of the *Scotch fir;* but having *grown more slowly* in those countries than the planted trees do here, and having been allowed to attain A MUCH GREATER AGE, that wood is beyond comparison closer, and *four times at least more durable*, in any kind of work, than the *young raw* deals [boards and planks] which are made of wood the usual growth of this country."

Dr. Anderson, in early life a practical farmer, a man of letters, and an ingenious and philosophical observer of nature, appears, nevertheless, to be entirely mistaken in his ideas of the cause of the hardness and strength of wood, and in ascribing to the same cause in part, its durability.—Mentioning the rings in trees which mark their growth, he says—" as one of these rings is added to the circumference of the tree each year of its growth and forms the whole increment of the tree for that year, it follows, that the less that increment is, or in other words, the *slower* the trees grow, the less will be the breadth [thickness] of these rings, and of course, the closer the grain of the wood, and the *harder* also it will be." Just the reverse of this is the fact. Every farmer and carpenter, in the United States, knows that the *thicker* the annual ring, or, in the common language, *the larger the grain*, the harder and stronger is the wood. Hence the butt-cuts of white oak are preferred for the spokes of wheels, and of hickory for axe-helves. Every wood-chopper also knows how much easier it is to fell and cut up the trees growing with small grains in a close forest, than trees of the same kinds which have grown singly and faster in open grounds. And every man who has used husbandry tools, a fork or rake for instance, whose handles are of ash, knows how much harder, stronger,

* Essays on Agriculture, Vol. III.

and heavier, because more solid, they are when made of timber with large grains, which had grown fast in good soils, or at such distances from tree to tree as not to rob one another of their food,—than when of small grained, slow growing timber. But the timber of trees, pasture oaks for instance, standing singly and at distances from others, and which are of rapid growth and consequently with large annual rings, or grains, though twice as tough and strong, is found, I have long understood less durable than the timber of oaks of slower growth. The reason is obvious. The oaks in forests do not attain the sizes fitting them for ship timber, until they have reached the age of *maturity* or *ripeness*. In this state they may probably continue stationary for some years: but if left standing for many years after they are of *full age*, the toughness and strength of the wood are greatly impaired. But *pasture*, or other *fast growing* oaks, attaining, in much fewer years, sizes suitable for ship-building and other uses, are sometimes cut down before they *come of age*, before they are *mature*, or *perfected by time*: and hence the earlier decay of such timber. The fact stated by Dr. Anderson, in comparing the "*raw*" *Scotch* and the *mature Baltic* firs, exemplifies this doctrine. And in correspondence with it, I will mention a maxim which probably had been handed down from generation to generation, and was repeated to me by my father when I was a boy, upwards of sixty years ago, which I perfectly remember, and have repeated to others: "My father used to say (so the maxim was introduced to me) *young* wood for *fire*, *old* wood for *timber*."

In reference to the memoir of M. Buffon, before mentioned, the authors of the British Encyclopædia, say that "By many experiments, particularly described in that essay, it appears that the tree should not be felled till the third year after it has been stripped of the bark; that it is then perfectly dry, and the sap [sap wood] become almost as strong as the rest of the timber, and stronger than the heart of any other oak tree which has not been so stripped; and the

whole of the timber stronger and heavier,* and harder; from which he thinks it fair to conclude, that it is also more durable." And they add, that "the navy board, in answer to the enquiries of the commissioners of the land revenue, in May, 1789, informed them that they had then standing some trees stripped of their bark two years before, in order to try the experiment of building one half of a sloop of war with that timber, and the other half with timber felled and stripped in the common way."—"We are sorry that we are not able to inform our readers of the result of the experiment."

Commodore Porter and his colleagues of the American Navy Board, may have it in their power to make, and carry into complete effect the same experiment. So may farmers possessed of timber trees. To render the experiments more fair and conclusive, trees as nearly as possible of the same size, and growing in the same soil, should be selected. Growing in the vicinity of each other, the equality of size will be an indication of an *equality of age*,—a point, probably, of material importance.

These experiments I hope will be made extensively by farmers, in preparing their trees for fencing, and for carts and other implements much exposed (often unnecessarily) to all changes of the weather. For however plausible *theories* may appear, *careful experiments alone* can determine their correctness.—Experiments by farmers may very easily be made, in their fences; by having some panels (or lengths of rails) of timber prepared in one way and then a like number of timber prepared in the other. At the same time too, they can try an experiment to ascertain whether, in post and rail fences, the rails, with their heart edges downwards, will last longer (as the commodore supposes) than with those edges upwards, in the mode universally practised. He suggests that the concentric rings (the annual growths) in trees split

* If *heavier* when of the same bulk with common timber, its fibres must *lie closer together*, be therefore *less pervious to moisture*, and consequently *more durable*.

into rails, and these placed in fences with their edges upwards, form so many cups or hollows, into which the rains and dews falling on the rails enter; and having no other way to escape, soak through the rings to the sap-wood and bark on the under side, and thereby hasten the rotting of the heart wood above. I much doubt the correctness of this theory. Rails placed with their heart edges upwards, have very steep roofs, by which water speedily runs off. Their heart-wood soon seasons, and its surfaces become close, without visible cracks. But place the broad, bark side upwards, the falling water will rest longer upon it, and enter the sap-wood, often an inch or more in thickness, and as soon as this shall become rotten, it will be a spunge to receive and hold water, to soak into and gradually rot the heart-wood below. Such is my view of this subject: but let experiments be made. For the purposes of the navy, or other shipbuilding, experiments may also be easily made; though not so satisfactorily as by constructing a vessel with the two sorts of timber as designed by the English Navy Board. An equal number of pieces of timber felled in the two different ways, may be dressed to the same sizes, and equally exposed to the weather in all its changes: and to expedite the result, they may be often immersed in water, so as to be almost daily wet and dry.

Hickory (in New-England generally called Walnut) grows in many parts of our country. It is a tough and hard wood; but when exposed to the weather, soon decays; yet may, it seems be advantageously used in salt waters infested with worms. Eighteen or twenty years ago, passing by a saw mill placed on tide water, I observed some hickory planks. I asked the sawyer for what use they were intended. He answered, for the sluice ways or other water works, of tide mills; because not liable, like oak, to be eaten by the worms. Passing a few days ago by some tide mills on the same streams, I mentioned the fact just stated to one of the proprietors. They continue to use hickory for the same purpose, because, said he, "the worms don't touch it." Any person inclined

to make trials of this wood for such purposes may previously ascertain the fact, by sinking two pieces, one of oak and the other of hickory, in waters where worms are known to abound; and after a few months taking them up again.

TIMOTHY PICKERING.

Salem, September 10, 1821.

AGRICULTURAL INTELLIGENCE.

We have been favoured with the perusal of an acccount of the management and success of a gentleman, who cultivates a small farm in Brooklyn, in whose accuracy, and veracity we place full reliance; and the result is such, as affords abundant encouragement to careful, and spirited cultivation. We regret, that an intimation, which we made to the gentleman, who shewed us the statement, did not procure the consent of the writer to its publication. If the delicacy of the writer prevented his avowing himself, still the facts might and would have been of great value to the public. The result of the statement, (and all the details are given,) was, that his farm had produced a net income over expenditure, amounting to more than 12 per cent on the capital employed.

In this connexion, we may also mention some facts, which we have learned of the success of the culture of the Hon. Mr. Quincy. We had hoped to obtain for this number an authentic statement by himself. The general outline is, that after reimbursing all expenses of cultivation, his estate gave him more than six per cent. on its value. He has this year under the plough principally for raising vegetables on the soiling principle, 36 acres. If it can once be made to appear that theoretical cultivators, by the application of skill and capital, without their own per-

sonal labour, can obtain a fair rate of interest for their money, agriculture will then be considered as in a prosperous condition, and our farmers will listen more willingly to counsellors who *prove what they assert.* It is with this view, that we must express our earnest wishes, that gentlemen will communicate in detail, and with accuracy, their successful husbandry.

THE HUSBANDMAN, AND HOUSEWIFE.

A SMALL, unpretending book, with this title, has been published by Thomas G. Fessenden Esq. well known to the public by his numerous essays, and publications. We have read it with attention, and think it well adapted to the use of farmers, who would not go to the expence of purchasing larger works. It is a collection of receipts, many of which are from high authority, and all of them, as far as they are accurate, calculated for daily and constant use. That errors should creep into such a work must be expected. The recipes are often taken from such transient works, or sources, so that it would be impossible for the compiler to vouch for their efficacy or exactitude—but still its use must be very great to the class of people for whom it was principally intended. We learn that a new and improved edition is contemplated and we must say, that such a manual carefully revised, and purged of all erroneous articles may be of much more general use, than more elaborate works read only by a small part of the community. From our personal knowledge of Mr. Fessenden's industry, and attention to the economy of agriculture, we feel a strong conviction, that he will make this book worthy of patronage.

DR. DEANE'S NEW ENGLAND FARMER.

IN our last number, we mentioned, that Messrs. WELLS & LILLY had caused this valuable, and as we think, stand-

ard work to be revised* at their own expence, and had put it to press. A wish to render it as perfect as they could, to incorporate in it most of the improvements which have taken place in agriculture since the publication of the second edition, and to expunge from it all superfluous matter, or opinions which are now exploded, has delayed the work to this time.

It will probably appear in the course of a few weeks. We have no other interest in introducing this subject again to the notice of our readers and subscribers, than the wish to diffuse correct agricultural knowledge. Dr. Deane's work was certainly as good a compendium for its size, as could be found in Europe at the time it was published. It had the special merit, for *us*, of adapting European modes of culture to *our* soil and climate. Even in its improved state, it is not pretended that the work supersedes the necessity, with intelligent cultivators, of an extensive agricultural library, but it is calculated, and well calculated, to aid the experience, and enlighten and direct the practice of all descriptions of farmers. It has been necessary so far to enlarge it, in consequence of the great modern improvements in agriculture, that it may prove too expensive for *small* farmers, but we think *all* farmers in *easy* circumstances will find it a very cheap book. Many things will not be new to them, but even these they will find enforced by new reasons and arguments. Though written principally with a view to the New England States, there is no part of the United States in which it will not be found of great value, and perhaps it may not be and ought not to be its smallest recommendation to the farmers of the United States, that excepting the Rev. Jared Elliot's small tract, it was the earliest and by far the most respectable agricultural work ever published in the United States. The Farmer's Assistant

* A great part of the revision and corrections were made by Thomas G. Fessenden, Esq.

by Mr. Nicholson, of the State of New York, a very respectable work, is apparently modelled upon it, and I presume the author will admit, what indeed his pages prove, the great assistance he derived from this work.

But in New England, it was thought best to republish Dr. Deane's work, with additions and connections, not with the wish, in any degree, to interfere with the other work alluded to. So far from it, Messrs. Wells & Lilly, to our knowledge, contemplated and proposed to the writer of this notice, the republication of Dr. Deane's work, before the Farmer's Assistant went to the press.

We repeat, that as Editors of this journal, and as individuals, we have no other interest in, or wish to promote the circulation of the new edition of Dr. Deane's New England Farmer's Dictionary, than the advancement of sound principles in agriculture. We wish well to all agricultural publications of *merit*, and as we have alluded to the Farmer's Assistant, we ought to add, that we think that work is one which deserves this character. We trust the demand of ten millions of people will be great enough for both, and in a few years, for many others.

MASSACHUSETTS AGRICULTURAL SOCIETY.

THE annexed list contains the names of all the members of the Massachusetts Society for promoting Agriculture, supposed to be now living. The largest portion of whom have been elected since June 1814; before which time, the members were held to pay one dollar *annually* to the funds of the Society, which entitled them to receive (on calling for them), the papers published by the Trustees, so long as they continued so to pay.

It was found so difficult to collect the assessments from distant members, that the Trustees determined, that all persons elected thereafter, should pay five dollars be-

fore receiving their diploma, and be entitled to all the Society's publications during their lives, from the date of their election.

Members previously elected were also permitted on the payment of five dollars, to enjoy the like advantages: were released from their annual subscription, and entitled to our publications for life, gratis. It would be very desirable that such a course might be adopted by them, as our numbers would be more extensively circulated and our means of granting premiums increased.

Many of the members elected since 1814, have not notified their acceptance to the Recording Secretary—those gentlemen have it still in their power, by sending five dollars to Messrs. Wells & Lilly, Booksellers, Court Street Boston, (who are the treasurer's agents for this purpose) who will deliver to their order their certificates and also the publications of the Society since the date of their election.

Honorary members, if they wish it, are also entitled on payment of five dollars to receive the publications of the Society, at the Bookstore of Messrs. Wells & Lilly.

The whole number of members, if we have computed correctly, amounts to seven hundred and thirty.

MEMBERS OF THE MASSACHUSETTS SOCIETY FOR PROMOTING AGRICULTURE. JUNE 1822.

Hon. John Adams,	*Quincy.*
John Andrews, Esq.	*Roxbury.*
Joseph Allen,	*Worcester.*
Jonathan Adams,	
Hon. Benjamin Adams,	*Uxbridge.*
Paul Adams,	*County of Essex.*
Caleb Ammidon,	
Major William Andrews,	*Ipswich.*
Asa Andrews,	*Do.*

Daniel Appleton,	*Haverhill.*
James Ayer,	*Do.*
John Abbott,	*Brunswick, (Me.)*
Hon. Wm. Abbott,	*Castine, (Me.)*
Calvin Ammidon,	*Charlton.*
Benjamin Ashley, jr.	*W. Springfield.*
Timothy Alyne,	*Do.*
John Atkins,	*Natick.*
Major Chester Adams,	*Needham.*
Samuel Appleton,	*Boston.*
Augustus Aspinwall	*Do.*
Nathaniel Amory,	*Do.*
Nathan Adams,	*Medford.*
Cyrus Alden,	*Boston.*
Hon. Samuel C. Allen,	*Northfield.*
Abiel Abbott,	*Andover.*
Nathan Adams, jr.	*Medford.*
His Ex. Governor John Brooks,	*Medford.*
Benjamin Beal,	*Quincy.*
Samuel Bass,	*Braintree.*
Samuel Baker,	*Berlin.*
Elijah Bates,	*Westfield.*
Hugho Burghardt,	*Richmond.*
Hon. James Bridge,	*Augusta, (Me.)*
William Billings,	*Conway.*
Seth Bannister,	
Ezra Beaman,	
Baily Bartlett,	*Haverhill.*
Thomas Bartlett,	*Boston.*
Benjamin Bussey,	*Do.*
Moses Butler,	
Luke Baldwin,	
Timothy Burbank,	*W. Springfield.*
Hon. P. C. Brooks,	*Boston.*
William Bartlett,	*Newburyport.*
David Barnard,	*Acton.*
John Breed,	*Charlestown.*
Ebenezer Breed,	*Do.*
Dr. George Bates,	*Boston.*
Michael Brown,	*Ipswich.*
Daniel Bixby,	*Do.*
Joseph Batchelor,	*Do.*
Jonathan Bascom,	*Orleans.*
Joseph Bowman,	*New Braintree.*
Daniel Brown,	*Cheshire.*

Enoch Bradley,	*Haverhill.*
Jonathan Baily,	*Do.*
Benjamin Bradley,	*Do.*
Paul Baily,	*County of Essex.*
Gen. Jacob Bliss,	*Springfield.*
Oliver Bagg,	*W. Springfield.*
Hon. Peter Bryant,	*Cummington.*
Edmund Bartlett,	*Newburyport.*
John Baker,	*Boston.*
Luke Bemis,	*Watertown.*
Seth Bemis,	*Do.*
Nathaniel Bemis,	*Do.*
Col. Amos Binney,	*Boston.*
John Beal,	*Hingham.*
Com. Wm. Bainbridge,	*Boston.*
Caleb L. Bradley,	*Haverhill.*
Abner Brown,	*Munson.*
Josiah Bumham,	*Durham, (N. H.)*
James Bowdoin,	*Boston.*
John Bellowes,	*Do.*
Asher Benjamin,	*Dorchester.*
Dr. John Bartlett,	*Roxbury.*
George Bird,	*Walpole.*
Jos. P. Bradlee,	*Boston.*
Lawson Buckminster, jr.	*Framingham.*
W. N. Boylston,	*Roxbury.*
Thomas M. Brewer,	*Boston.*
George Brown,	*Beverly.*
Samuel Brooks,	*Brighton.*
Cyrus Bryant,	*Cummington.*
George W. Beale,	*Quincy.*
Enoch Bartlett,	*Boston.*
Joseph Baker,	*Do.*
John Bryant,	*Do.*
William Brown,	*Do.*
Hon. George Cabot,	*Boston.*
Hon. Daniel Coney,	*Augusta, (Me.)*
Hon. Nehemiah Cleveland,	*Topsfield.*
Cornelius Coolidge,	*Boston.*
William Cleveland,	*Lancaster.*
Benjamin Croggin,	*Douglass.*
Samuel Chadwick,	*Bradford.*
Ephraim Corlis,	*Haverhill.*
Daniel Carleton,	*Bradford.*
Elijah Carleton,	*Methuen.*

Daniel Currier,	*Methuen.*
Samuel D. Colt,	*Pittsfield.*
John Choate,	*Ipswich.*
Major J. P. Choate,	*Ipswich.*
George Choate,	*Do.*
General Elijah Cobb,	*Brewster.*
Hon. Oliver Crosby,	*Brookfield.*
Benjamin Craigie,	
Aaron Carleton, jr.	*Haverhill.*
Richard Coffin,	*County of Essex.*
Nathaniel Coffin,	*Bath.*
Peleg Chandler,	*N. Gloucester, (Me.)*
Isaac Cook,	*Brookline.*
Joseph Curtis,	*Roxbury.*
Nathaniel Chandler,	*Petersham.*
Edward Cruft,	*Boston.*
Richard Crowninshield,	*Danvers.*
Dr. S. D. Cushing,	*Boston.*
John Champney,	*Roxbury.*
Joel Cranston,	*Marlborough.*
John Cook,	*Cambridge.*
Simpson Clarke,	*Boston.*
Isaac Clapp,	*Dorchester.*
Edmund Cushing,	*Lunenburg.*
Samuel F. Coolidge,	*Boston.*
Rev. Henry Coleman,	*Brooklyn.*
Col. Chapin,	*Springfield.*
T. Mather Clapp,	*Boston.*
Pliny Clapp,	*Do.*
Effingham L. Chapman,	*Uxbridge.*
Hon. B. C. Crowninshield,	*Salem.*
Jos. Coolidge, jr.	*Boston.*
Col. H. Chapin,	*Springfield.*
Rev. John Codman,	*Dorchester.*
D. W. Child,	*Boston.*
Gilman Collamore,	*Pembroke.*
Charles R. Codman,	*Boston.*
Dr. Aaron Dexter,	*Do.*
Dr. S. Danforth,	*Do.*
Seth Davenport,	
Hon. John Davis,	*Boston.*
Joel Dix,	*Waltham.*
Ezekiel Hersy Derby,	*Salem.*
John Derby,	*Do.*
Robert Dodge,	*Hamilton.*
James Deering,	*Westbrook.*

Hon. Edward Dowse,	*Dedham.*
Hon. Nathan Dane,	*Beverley.*
Edmund Dwight,	*Boston.*
Samuel Dillaway,	*Dorchester.*
Simeon Draper,	*Brookfield.*
James Duncan,	*Haverhill.*
Samuel Duncan,	*Do.*
Heman Day,	*W. Springfield.*
Jonathan Davis,	*Boston.*
Gen. H. A. S. Dearborn,	*Roxbury.*
Gen. S. G. Derby,	*Weston.*
Isaac Davenport,	*Milton.*
Isaac Davis,	*Roxbury.*
Moses Dole,	*County of Essex.*
Jonathan Dorr,	*Roxbury.*
William Davis,	*Do.*
Hon. Samuel Dana,	*Groton.*
Choir Dole,	*County of Essex.*
John Davis,	*Augusta, (Me.)*
Jonathan Dwight,	*Springfield.*
Jonathan Dwight, jr.	*Do.*
Heman Day,	*W. Springfield.*
Charles Davis,	*Roxbury.*
Hon. H. W. Dwight,	*Stockbridge.*
Samuel W. Duncan,	*Haverhill.*
Samuel Downer,	*Dorchester.*
John Dorr,	*Boston.*
Benjamin Davenport,	*Mendon.*
Samuel Davis,	*Boston.*
Pickering Dodge,	*Salem.*
Thomas Dennie,	*Boston.*
Nathaniel Dorr,	*Roxbury.*
Samuel Dorr,	*Boston.*
Ezra Dyer,	*Do.*
Capt. John Downes,	*Newton,*
William Edwards,	
Hon. Timothy Edwards,	*Stockbridge.*
Thomas English,	*Boston.*
Moses Emery,	*Haverhill.*
Daniel Emerson,	*Do.*
Paine Elwell,	*Bradford.*
Oliver Emerson,	*Methuen.*
Billy Emerson,	*Ipswich.*
Robert Emery,	*Springfield.*
Daniel Emery,	*County of Essex.*

Samuel A. Eliot,	*Boston.*
William D. Eliot,	*Do.*
Dwight Foster,	*Brookfield.*
Simon Frye,	*Fryeburgh, (Me.)*
Dr. Joshua Fisher,	*Beverly.*
Samuel Fowler,	*W. Springfield.*
Arthur Fessenden,	*Boston.*
Samuel Fessenden,	*N. Gloucester.*
James Freeman,	*Sandwich.*
Samuel Freeman,	*Eastham.*
James Frye,	*Methuen.*
Alexander Field.	*Longmeadow.*
Hon. Oliver Fisk,	*Worcester.*
John B. Fitch,	*Boston.*
Gen. T. M. Forman,	*Maryland.*
Joshua Frost,	*Springfield.*
William Flagg,	*Durham (N. H.)*
Samuel J. Flagg,	*Worcester.*
John Fayerweather,	*Westborough.*
Hon. S. P. P. Fay,	*Cambridge.*
Benjamin Fuller,	*Dorchester.*
Abraham F. Fuller,	*Boston.*
William Furnald,	*Charlestown.*
John Forrester,	*Salem.*
Russell Freeman,	*Sandwich.*
Otis Fay,	*Brighton.*
William Felt,	*Medway.*
Samuel Fales,	*Boston.*
Hon. Christopher Gore,	*Waltham.*
D. S. Greenough,	*Roxbury.*
Hon. William Gray,	*Boston.*
Samuel P. Gardner,	*Do.*
Thomas Gold,	*Pittsfield.*
Joseph Greene,	*Wendell.*
Robert H. Gardiner,	*Gardiner, (Me.)*
Benjamin Goddard,	*Brookline.*
Moses Gale,	*Haverhill.*
Col. Rufus Groves,	*Leverett.*
Joseph Geddings,	*Ipswich.*
Stephen P. Gardiner,	*Bolton.*
Asa Goodell,	*Milbury.*
Elijah Gould,	*Phillipston, (Me.)*
Prince Gifford, jr.	*Falmouth.*
Godfrey Grovenor,	*Minot.*
Moses Greenleaf,	*Bangor, (Me.)*

Benjamin Guild,	*Boston.*
Luther Gay,	*Cambridge.*
Willard Gay,	*Dedham.*
Alexander H. Gibbs,	*Roxbury.*
Dr. Henry Gardner,	*Dorchester.*
Jeremiah Gore,	*Boston.*
Charles W. Greene,	*Roxbury.*
Silas Gates,	*Marlborough.*
Jotham Gay,	*Dedham.*
Joshua Gardner,	*Dorchester.*
D. S. Greenough, jr.	*Roxbury.*
Lewis Grosvenor,	*Boston.*
Stephen Higginson,	*Do.*
Henry Hill,	*Do.*
Gen. Wm. Hull,	*Newton.*
John Hicks,	
Rev. John Homer,	*Newton.*
Daniel Howard,	
Benjamin Hills,	*County of Essex.*
Hon. Seth Hastings,	*Mendon.*
Jonathan P. Hall,	*Medford.*
Thomas Hale,	
Artemus Howe,	
Ebenezer Hall,	*Medford.*
Joseph Haskell,	
Hon. Jonathan Hunnewell,	*Boston.*
Richard Hall,	*Medford.*
Ebenezer Hall, jr.	*Do.*
Nathaniel Hall, jr.	*Do.*
Stephen Higginson, jr.	*Cambridge.*
Hon. Samuel Hinckley,	*Northampton.*
Thomas Hewes,	*Dorchester.*
Hon. Silas Holman,	*Bolton.*
Jabez Harding,	*Sturbridge.*
Joseph Hatch,	*Falmouth.*
Stephen Homer,	*Dennis.*
Charles Hallet,	*Yarmouth.*
Epaphras Hoyt,	*Deerfield.*
Hon. Caleb Hyde,	*Lenox.*
Ambrose Hall,	*Williamstown.*
David Howe,	*Haverhill.*
Ebenezer Hyde,	*New Marlborough.*
Joseph Howe,	*Methuen.*
John Hooker,	*Springfield.*
Hon. M. L. Hill,	*Georgetown, (Me.)*

Samuel Henry,	*Halifax.*
Jos. S. Hastings,	*Newton.*
Joseph Harrington,	*Roxbury.*
John Heard,	*Boston.*
Samuel Hyde,	*Newton.*
Gen. Jas. Humphreys,	*Athol.*
Samuel Hammond,	*Boston.*
Moses Healey,	*Dudley.*
Dudley Hall,	*Medford.*
Jonathan Hodges,	*Salem.*
Rev. B. Howard,	*Springfield.*
Elihu Hoyt,	*Deerfield.*
George Hubbard,	*Elsworth.*
Abiel Heywood,	*Concord.*
Lewis Hunt,	*Northampton.*
Aaron Hill,	*Boston.*
Nathan Hale,	*Do.*
Ralph Haskins,	*Do.*
Edward Howard,	*Oxford.*
William Hammald,	*Scituate.*
Daniel Hastings,	*Newton.*
Jonas Howe,	*Rutland.*
Wolcutt Hubbell,	*Lanesborough.*
James Humphrey,	*Dorchester.*
Jona. Howard,	*Boston.*
George Hallett,	*Do.*
David Hale, jr.	*Do.*
Rev. Nymphas Hatch,	*Westford.*
John Hubbard,	*Boston.*
Joseph Hall,	*Chelsea.*
Joseph Hall,	*Boston.*
John W. Hayward,	*Do.*
Samuel Henshaw,	*Do.*
George Hayward,	*Do.*
James Hill,	*Cambridge.*
Clarendon Harris,	*Boston.*
Nathaniel Ingersoll,	*Brookline.*
Henderson Inches,	*Boston.*
George Ives,	*G. Barrrington.*
John Coffin Jones,	*Boston.*
Col. Joseph Jones,	
Benjamin Josslyn,	
Israel Jones,	
Nathan Jones,	
Thomas K. Jones,	*Boston.*
Dr. Joshua Jewitt,	*Rowley.*

Thomas Jones,	*Falmouth.*
Nathaniel Jenkins,	*Brewster.*
Samuel Jaques, jun.	*Charlestown.*
G. S. Johonnot,	*Salem.*
Leonard Jarvis, jun.	*Surry.*
Charles Jarvis,	*Ellsworth.*
Oliver Jones,	*Dracut.*
William Jackson,	*Plymouth.*
William Jackson,	*Newton.*
Patrick T. Jackson,	*Boston.*
Diming Jarvis,	*Do.*
Thomas Jackson,	
Martin Kinsley,	
Rev. President Kirkland,	*Cambridge.*
John Kendrick,	*Newton.*
Oliver Keating,	
Danforth Keyes,	
Paul Kent,	*County of Essex.*
Caleb Kimball,	*Do.*
Silas Kellogg,	*Sheffield.*
James Kimball,	*Bradford.*
Jesse Kimball,	*Do.*
Moses Kimball,	*Do.*
Hon. William King,	*Bath, (Me.)*
Josiah Knapp,	*Boston.*
Jacob R. Knapp,	*Brighton.*
Ruggles Kent,	*W. Springfield.*
Silas Kempton,	*New Bedford.*
Joseph Lee,	*Boston.*
Solomon Lovell,	*Weymouth.*
Theodore Lyman,	*Waltham.*
Hon. John Lowell,	*Roxbury.*
William R. Lee,	*Salem.*
Horatio Leonard,	*Raynham.*
Josiah Little,	*Newbury*
John Low,	*Lyman.*
David Lumbard,	
Theodore Lincoln,	*Dennysville.*
Josiah Lamson,	*Ipswich.*
Hon. Samuel Lathrop,	*W. Springfield.*
William Lawrence,	*Boston.*
Isaac Locke,	*West Cambridge.*
Robert Lapish,	*Bangor.*
Isaac Lyman,	*York.*
David Little,	*County of Essex.*

Tristram Little,	*County of Essex.*
Moses Little,	*Do.*
Silas Little,	*Do.*
Hon. Levi Lincoln, jun.	*Worcester.*
Luther Lawrence,	*Groton.*
Martin Lincoln,	*Hingham.*
Hon. James Lloyd,	*Boston.*
Eliphalet Loring,	*Hingham.*
Roswell Lee,	*Springfield.*
Daniel Lombard,	*W Springfield.*
Amos Lawrence,	*Boston.*
Dr. James Lovell,	*Weymouth.*
Abbott Lawrence,	*Boston.*
Thomas Lee,	*Cambridge.*
John Lemist,	*Roxbury.*
Henry Lunt,	*Dorchester.*
Joseph P. Leland,	*Sherburne.*
Thomas Lewis,	*Boston.*
Thomas Lee, jun.	*Do.*
Tristram Little,	*Newbury.*
William Martyn,	*N. Yarmouth.*
Nehemiah Munroe,	*Roxbury*
Hon. Jonathan Mason,	*Boston.*
Abner Morgan,	*Brimfield.*
Elisha May,	*Attleborough.*
John Micall,	*Cambridgeport.*
Joseph Merrick,	*Pittsfield.*
Elisha Matthews,	*N. Braintree.*
Col. Hugh Maxwell,	
Fabrica Montague,	*Amherst.*
James Magee,	*Roxbury.*
Oliver Morse,	*Haverhill.*
John Mears,	*Dorchester.*
Thomas Motley,	*Boston.*
Gen. Ebenezer Mattoon,	*Amherst.*
Dr. Eliakim Morse,	*Watertown.*
Israel Munroe,	*Boston.*
Thomas Melville,	*Do.*
Isaac M'Lellan,	*Do.*
Edmund Munroe,	*Do.*
George Murdock,	*Do.*
Israel Munson,	*Do.*
Samuel May,	*Do.*
Edward Miller,	*Quincy.*

Thomas Newhall,	*Leicester.*
Rev. Jonathan Newhall,	*Natick.*
Asa Nelson,	*Rowley.*
Joseph North,	*Augusta.*
Amasa Nichols,	*Dudley.*
Joseph Newhall,	*County of Essex.*
Edward A. Newton,	*Boston.*
Samuel Noyes,	*County of Essex.*
Stephen Noyes, jun.	*Do.*
Ichabod Nichols,	*Salem.*
Abijah Northey,	*Do.*
Prof. Andrews Norton,	*Cambridge.*
John Osgood,	*County of Essex.*
Dr. George Osgood,	*Andover.*
Isaac Osgood,	*Do.*
Benjamin Osgood,	*Methuen.*
David Ordway,	*County of Essex.*
Francis J. Oliver,	*Boston.*
John Osgood,	*Salem.*
Samuel Orne,	*Do.*
Prof. W. D. Peck,	*Cambridge.*
Hon. R. Paine,	*Worcester.*
William Payne,	*Boston.*
Dr. William Paine,	*Worcester.*
Samuel W. Pomeroy,	*Brighton.*
Jonathan Patten,	*Stockbridge.*
William Prince,	*N. York.*
Thomas Perley,	*Boxford.*
Enoch Perley,	*Do.*
Gorham Parsons,	*Brighton.*
John Prince,	*Roxbury.*
Samuel G. Perkins,	*Boston.*
Hon. Samuel Putnam,	*Salem.*
John Parkman,	*Brighton.*
Henry Penniman,	*New Braintree.*
John Phillips,	*Sturbridge.*
Timothy Phinney,	*Brewster.*
Moses Parker,	*Bradford,*
Thaddeus Pomeroy,	*Stockbridge.*
Benjamin C. Perkins,	*Becket.*
Benjamin Percival,	*Sandwich*
Eleazer Pettingal,	*County of Essex.*
Hon. Dudley L. Pickman,	*Salem.*
Jonah Paine,	*Portland, (Me.)*
Henry Prentiss,	

Oliver Putnam,	*Boston.*
Hon John Phillips,	*Do.*
James Perkins,	*Do.*
Hon. T. H. Perkins,	*Do.*
Daniel Putnam,	*Lunenburgh.*
Jonathan Parsons,	*West Springfield.*
William Parsons,	*Boston.*
Nathan Polley,	*Walpole.*
Willard Peele,	*Salem.*
Jerathmael Pierce,	*Do.*
Hon. Benjamin Pickman,	*Do*
John Perry,	*Boston.*
Asahel Pomeroy,	*Northampton.*
Jesse Putnam,	*Boston.*
Hon L. M Parker,	*Charlestown.*
Samuel Parkman,	*Boston.*
Hon Timothy Pickering.	*Wenham.*
Nathan Parker,	*Boston.*
Joseph Peabody,	*Salem.*
Elijah Perry,	*Natick.*
Hon. W. Prescott,	*Boston.*
Gurdon Pellett,	*N. Brookfield.*
Edward A. Pearson,	*Boston.*
Thomas Perkins,	*Do.*
Hon. Josiah Quincy,	*Boston.*
Hon. E. H. Robbins,	*Milton.*
Moses C. Read,	
Samuel Russell,	*N. Yarmouth.*
David Robinson,	*Grenville.*
Stephen Runnells,	*Methuen.*
John Russ,	*Do.*
John Rice,	*Brookfield.*
Samuel Reddington,	*Vassalborough.*
Hon. Thomas Rice,	*Winslow.*
Hon. James Richardson,	*Dedham.*
B. Tyler Reed,	*Marblehead.*
Andrew Ritchie,	*Boston.*
John Richardson,	*Newton.*
Dr. P. G. Robbins,	*Roxbury*
Benjamin Rice,	*Marlborough.*
Nathaniel P. Russell,	*Boston.*
Joseph W. Revere,	*Do.*
Nathan Rice,	*Do.*
James M. Robbins,	*Do.*
Jonathan Simpson,	*Do.*

Isaac Smith,	*Malden.*
Hon. David Sewall,	*York.*
Ephraim Spring	
Josiah Stearns,	
James Sproat,	*Taunton.*
John Southgate,	
John Saile,	*Chelsea.*
Dr. Amos Spafford,	*Rowley.*
John L. Sullivan,	*Boston.*
Dr. W. Spooner,	*Do.*
Caleb Stimpson,	*Roxbury.*
Hon. Richard Sullivan,	*Bookline.*
John Sprague,	*Dedham.*
Charles Sedgewick,	*Stockbridge.*
Richard Stewart,	*Haverhill.*
Thomas Savory,	*Bradford.*
Adolphus Spring,	*Northbridge.*
Harvey Sessions,	*Western.*
William H. Sumner,	*Boston.*
John Story, 4th.	*Ipswich.*
Rev. Michael Stone,	*Brookfield.*
Robert Sessions,	*Wilbraham.*
Joseph Stanwood,	*County of Essex.*
Hon. Josiah Stebbins,	*Alna.*
Henry Sheaffe,	*Boston.*
Fitz W. Sargent,	*Newton.*
John Swett,	*Watertown.*
Samuel Swan,	*Medford.*
Dr. Benjamin Shurtleff,	*Boston.*
Marshall B. Spring,	*Watertown.*
Barney Smith,	*Milton.*
Leverett Saltonstall,	*Salem.*
Samuel Swett,	*Cambridge.*
Calvin Sanger,	*Sherburn.*
David Sears,	*Boston.*
Benjamin Stebbins,	*W. Springfield.*
Ebenezer Seecomb,	*Salem.*
James Shepherd,	*Northampton.*
William Stackpole,	*Boston.*
Samuel Salisbury,	*Do.*
Ashael Stearns,	*Cambridge.*
John Skinner,	*Charlestown.*
George Shed,	*Boston.*
Thomas Stearns,	*Lunenburgh.*
Isaac Stevens,	*Boston.*

Hon. Jos. Story,	*Salem.*
Hon. Nathaniel Silsbee,	*Do.*
Benjamin Swift,	*Charlestown.*
William Sturgis,	*Boston.*
Hon. Israel Thorndike,	*Do.*
Hon. D. A. Tyng,	*Do.*
Salem Towne,	*Charlton.*
Bezaleel Taft,	*Uxbridge.*
Isaiah Thomas,	*Worcester.*
Dr. Joshua Thomas,	*Boston.*
Minot Thayer,	*Braintree.*
Cotton Tufts, jr.	*Weymouth.*
Salem Towne, jr.	*Charlton.*
Israel E. Trask, jr.	*Brimfield.*
Samuel C. Thacher,	*Warren.*
Peleg Tolman,	*Bath.*
Ichabod Tucker,	*Salem.*
John Thomas,	*Marshfield.*
Paul Thurlow,	*County of Essex.*
Jacob Towne, jr.	*Topsfield.*
Captain Charles Tracy,	*Boston.*
Bezaleel Taft, jr.	*Uxbridge.*
Hon. Aaron Tufts,	*Dudley.*
Samuel Tewksbury,	*Chelsea.*
Thomas Thaxter,	*Boston.*
Israel Thorndike, jr.	*Do.*
John Tappan,	*Do.*
Abraham Touro,	*Do.*
Levi Thaxter,	*Watertown.*
Dr. Grovenor Tarbell,	*Lincoln.*
Bryant P. Tilden,	*Boston.*
William Tileston,	*Do.*
David Tenny,	*Sutton.*
Nathaniel Tucker,	*Newton.*
Joseph Tufts, jr.	*Charlestown.*
Henry H. Tuckerman,	*Boston.*
Hon. Joseph Tilden,	*Do.*
Benjamin Thaxter,	*Do.*
Lewis Tappan,	*Do.*
Jechonias Thayer,	*Do.*
Charles Thacher,	*Do.*
Phinehas Upham,	
Benjamin Upton,	
Charles Vaughan,	
Parker Varnum,	*Dracut.*

Col. James Varnum,	*Dracut.*
J. J. Valentine,	*Boston.*
Issaac D. Vose,	*Dorchester.*
Thomas L. Winthrop,	*Boston.*
William Winthrop,	
William Wetmore,	*Boston.*
Dr. Benjamin Waterhouse,	*Cambridge.*
Dr. Thomas Welsh,	*Boston.*
Joseph Woodward,	*Do.*
John Walker,	*Woburn.*
Dudley Walker,	*Billerica.*
Timothy Williams,	*Boston.*
Dr. Redford Webster,	*Do.*
Thomas Williams,	*Chelsea.*
Hon. Artemas Ward,	*Boston.*
Hon. John Welles,	*Do.*
Elkanah Watson,	*Albany.*
John Winthrop,	*Dorchester.*
Thomas Walley,	*Brookline.*
Dr. Timothy Wellington,	*W. Cambridge.*
S. S. V. P. Wilder,	*Bolton.*
Hon. Jos. Whiton,	*Lee.*
Ezra Wood, jr.	*Upton.*
Abiel Wood,	*Wiscasset.*
Charles White,	*Haverhill.*
Rev. Abiel Williams,	*Dudley.*
Matthew Wood,	*Brookfield.*
Hon. Daniel Waldo,	*Worcester.*
Asa Whitney,	*Roxbury.*
Jonathan Winship,	*Brighton.*
David Williams,	*Natchez.*
Davis Whitman,	*Lancaster.*
William Winthrop,	*N. York.*
John W. Wheeler,	*Grafton.*
Abner Wheeler,	*Framingham.*
Benjamin Wheeler,	*Do.*
Horace White,	*W. Springfield.*
Col. William Ward,	*Worthington.*
Thomas Williams,	*Roxbury.*
J. D. Williams,	*Boston.*
Daniel Weld,	*Do.*
Abijah White,	*Watertown.*
Stephen Williams,	*Northborough.*
D. O. Waterhouse,	*Cambridge.*
Jonas White,	*Watertown.*

Samuel Ward,	*Brookline.*
Stedman Williams,	*Roxbury.*
Aaron D. Williams,	*Do.*
Ebenezer Wales,	*Dorchester*
Jonathan Wheeler,	*Grafton*
Timothy Walker,	*Charlestown.*
N. W. Williams,	*Roxbury.*
Edmund Wright,	*Boston.*
Thomas B. Wales,	*Do.*
George Welles,	*Do.*
Stephen Williams,	*Roxbury.*
Payson Williams,	*Fitchburgh.*
Hon. D. A. White,	*Salem.*
Samuel H. Walley.	*Boston.*
Professor Sydney Willard,	*Cambridge.*
Edmund Winchester,	*Boston.*
John Wilson,	*Roxbury.*
William Young,	

HONORARY MEMBERS ELECTED SINCE THE LAST PUBLICATION OF THE LIST OF MEMBERS.

Sir Benjamin Hobhouse, Bart.	*London, G. Britain.*
James Temple Bowdoin, Esq.	*Boston.*
William Botsford, Esq.	*St. John, N. B.*
Ward Chipman, jr. Esq.	*St. John N. B.*
John B. Dabney, Esq.	*U. S Consul, Azores.*
Rev. John Dampier,	*Near Havre, France.*
Jno. B. Greene, Esq.	*Do.*
Morgan Gibbes, Esq.	*Charleston, S. C.*
Abijah Hammond, Esq.	*New York.*
Samuel King, jr. Esq.	*East-Greenwich, R. I.*
Hon. Stephen Moody,	*Gilmantown, N. H.*
Hon. William Phillips,	*Boston.*
Moses Rogers, Esq.	*New York.*
John Young, Esq.	*Halifax, Nova Scotia.*
Nathaniel Gilman, Esq.	*Exeter, N. H.*
Jacob Perkins, Esq.	*Newburyport.*
Nicholas Biddle, Esq.	*Philadelphia.*
Jesse Buel, Esq.	*Albany, N. Y.*
David Porter, Esq.	*U. S. Navy.*
Tenck Tilyham, Esq.	*Talbot Co. Maryland.*
Ray Clark, Esq.	*E. Greenwich, R. I.*
Anthony Dey, Esq.	*New York.*

Franca Ulbaldo Jeconi,	*Florence, Italy.*
Doctor Fillippo Gallizioli,	*Do. Do.*
Hon. Sampson S. Blowers,	*Nova Scotia.*
John S. Skinner, Esq.	*Baltimore.*
John Hare Powell, Esq.	*Philadelphia.*
James Wadsworth,	*Genesee, N. Y.*
Don Sarchiani,	*Florence.*
Jonathan F. Mansony, Esq.	*Do.*
Lemuel Kollock, M. D.	*Savannah, Geo.*
Hon. Jonathan Coffin,	*St. John N. B.*
George Calvert, Esq.	*Bladensburg, Md.*
Charles H. Hall, Esq.	*Pomfret, Con.*
Laine, Mons. Sec. Ag. Society,	*Caen, France.*
Hon. Ambrose Spencer,	*Albany, N. Y.*
Hon. Thomas Worthington,	*Ohio.*
Samuel Williams, Esq.	*London.*
Charles Williams, Esq.	*Do.*
Thomas A. Knight, Esq.	*Elton, G. Britain.*

Samuel Parkes, Esq. *London, Member of the Geological Society of London, and of the Highland and Agricultural Societies of Scotland, &c. &c. &c.*

OFFICERS ELECTED JUNE 12, 1822.

Aaron Dexter, M.D. *President.*

Samuel W. Pomeroy, Esq. 1*st Vice-President.*

Thomas L. Winthrop, Esq. 2d *Vice-President.*

John Prince, Esq. *Treasurer.*

John Lowell, Esq. *Corresponding Secretary.*

Hon. Richard Sullivan, *Recording Secretary.*

Benjamin Guild, Esq. *Assistant Recording Secretary.*

TRUSTEES.

Hon. P. C. Brooks,	S. G. Perkins, Esq.
Hon. John Welles,	Gorham Parsons, Esq.
Hon. Josiah Quincy,	E. Hersey Derby, Esq.

Wells and Lilly

HAVE A FEW SETS OF THAT SUPERB WORK,

MICHAUX'S NORTH-AMERICAN SYLVA;

OR,

A Description of the Forest Trees of the United States, Canada, and Nova Scotia, considered particularly with respect to their use in the Arts, and their introduction into Commerce: to which is added, a Description of the most useful of the European Forest Trees.

Illustrated by 156 Coloured Engravings. Price $37,50, in three volumes, Royal 8vo. boards.

ALSO,

FLORA BOREALLAMERICANA, sistens characteres Plantarum, quas in America septentrionali collegit ac detexit *Andreas Michaux*. Tabulis Aeneis 51. ornata. 2 vols. in one, price $5.

They have Lately Published,

A FOREIGNER'S OPINION OF ENGLAND. Englishmen Englishwomen, English Manners, English Morals, English Domestic Life, English Arts and Artists, English Literature, English Criticism, English Education, English Universities, English Clergy, English Sectarians, English Nobility, English Parties, English Politics, English Laws, English Lawyers, English Merchants, English Commerce, English Charities, English Fashions, English Amusements, and a Variety of other interesting Subjects, including Memorials of Nature and Art, comprised in a Series of free Remarks, the result of Personal Observation during a Residence of Two Years in Great Britain. By CHARLES AUGUSTUS GOTTLIEB GOEDE. Translated from the original German By THOMAS HERNE. In one volume, 8vo.

ELEMENTS OF THE PHILOSOPHY OF THE HUMAN MIND. By DUGALD STEWART, Esq. F.R.SS. Lond. & Edin. &c. &c. &c. Price $3.

MEMOIRS OF THE COURT OF JAMES 1st. By MISS AIKIN. 2 vols. boards, $4.